On the Eve of our Founder-Chancellor's Birthday 2024

"QUALITY MEANS DOING IT RIGHT WHEN NO ONE IS LOOKING"

W Edwards Deming

Father of Quality Management

"Anything worth doing is worth doing right the first time."

Faculty of Management Studies

Dr. M.G.R.
EDUCATIONAL AND RESEARCH INSTITUTE
DEEMED TO BE UNIVERSITY
University with Graded Autonomy Status
(An ISO 21001 : 2018 Certified Institution)
Periyar E.V.R. High Road, Maduravoyal, Chennai-95. Tamilnadu, India.

W Edwards Deming

Father of Quality Management

Compiled by :
Prof Dr S Asrafi
Faculty of Management Studies
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Joint-Registrar—Languages

Deming died in his sleep at the age of 93 in his Washington home from cancer on December 20, 1993. When asked, toward the end of his life, how he would wish to be remembered in the U.S., he replied, "I probably won't even be remembered. " After a pause, he added,
"Well, maybe ... as someone who spent his life trying to keep America from committing suicide."

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Dr William Edwards Deming

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Dedication

Walter A Shewhart

18 Mar 1891 <<::>> 11 Mar 1967

FOREWORD

"If you can't describe what you are doing as a process,
you don't know what you're doing."

Let me commence with an appreciation that the Department of Management Studies had organized a Three-day International Conference – "Quality Management System" - in 2011 (12 – 14 October) commemorating 111th Birth Anniversary of Dr William Edwards Deming. A book, QUALITY MANTRA in 21st Century [ISBN 978-81-91-0827-2-2] was published compiling the 86 papers received. The book was financed by Quality Council of India, Govt of India. [Refer to Chapter-17 in the Book].

W Edwards Deming (14 Oct 1900 – 20 Dec 1993) was an American statistician, educator, and consultant whose advocacy of quality-control methods in industrial production aided Japan's economic recovery after World War II and spurred the subsequent global success of many Japanese firms in the late 20th century.

Early renditions of Quality Management System (QMS) began with the great entrepreneurs of the late 19th century who first perfected the idea of mass production. There were more employees to manager, hardware to maintain, and processes to make efficient. However, deadlines were not quite forgiving of these new problems. The businessmen also realized the volatile quality that was coming off of their lines.

In 1950 Japanese business leaders invited Deming to Japan to teach executives and engineers about the new methods. Japanese companies quickly adopted his methods, with the result being a commitment to quality control that helped Japanese firms dominate some product markets in many parts of the world.

The story of evolution of quality from the concept to awards/rewards, during the 20th century is not only fascinating but also thought provoking. So many pioneers had contributed their might towards creating a tremendous awareness among workmen as well as corporate executives. Several countries, in an attempt to encourage and recognize the contribution made by multinational companies, established a standard award. The first and the foremost is the award established by Japanese Union of Scientists and Engineers (JUSE) in the name of Dr William Edwards Deming. Following suit, the US government initiated a long and very tedious process to come out with a award. In the process of instituting the award – 'Malcolm Baldrige National Quality Award' -, the

reaction of Dr William Edwards Deming, when invited by the American Society for Quality Control (ASQC), is as follows:

(a) there was no organization in America good enough to receive such recognition; &
(b) and even if there were, there was no one in America knowledgeable enough to make such a judgement.

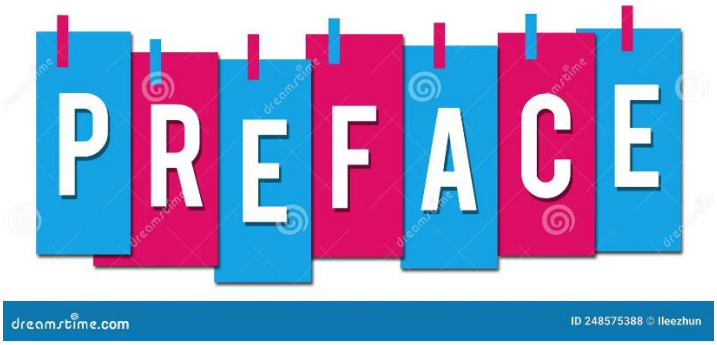
The Deming Prize (established 1951), awarded annually to Japanese corporations that win a rigorous quality-control competition, is named in Deming's honour. It was not until the 1980s that Deming's ideas were adopted by American corporations seeking to compete more effectively in the world market.

This book "W EDWARDS DEMING – Father of Quality Management" – meant to be published on the eve of our Founder-Chancellor's Birthday (25 Sep 2024) – containing 22 chapters running into 226 pages makes a sincere and serious attempt to portray his life, contributions and achievement in the field of quality management. Four chapters (7,8,13 & 15) enormously discuss the several multi-variant aspects of Total Quality Management. Some of the highly selected quotations of Dr William Edwards Deming have been provided which may inspire the readers (Chapter-9).

14 Points of Total Quality Management (TQM) have been pictorially explained by the appropriate 14 cartoons. Chapter-8 presents several cartoons depicting the various aspects of the principles of TQM. Chapter-9 provides several case studies of TQM from the American university, corporates and quality professionals. His selected six books (Chapter-12) and 10 books on TQM (Chapter-13) have been discussed briefly.

Bringing up such a book – by the Faculty of Management Studies - as this is highly appreciated and also, it is hoped that the students/scholars of management studies and other stakeholders would find the book as very useful/helpful.

Prof Dr S Geethalakshmi
Vice-Chancellor
Dr MGR Educational and Research Institute



Considered by many to be the master of continual improvement of quality, as well as their overall operation, Deming is best known for his pioneering work in Japan. Beginning in the summer of 1950, he taught top managers and engineers the methods for improving how they worked and learned together. His focus was both internally, between departments, and externally, with their suppliers and customers. As a trusted consultant, Deming significantly contributed to the dramatic turnaround of post-war Japanese industry and its rise to a world economic power. Dr Deming's role as the architect of Japan's post-World War II industrial transformation is regarded by many Western business schools and economists as one of the most significant achievements of the 20th century. He is often called the "father of the third wave of the industrial revolution."

In 1947, Deming was involved in early planning for the 1951 Japanese census. The Allied powers were occupying Japan, and he was asked by the United States Department of the Army to assist with the census. He was brought over at the behest of General Douglas MacArthur, who grew frustrated at being unable to complete so much as a phone call without the line going dead due to Japan's shattered postwar economy. While in Japan, his expertise in quality-control techniques, combined with his involvement in Japanese society, brought him an invitation from the Union of Japanese Scientists and Engineers (JUSE).

Deming declined to receive royalties from the transcripts of his 1950 lectures, so JUSE's board of directors established the Deming Prize (December 1950) to repay him for his friendship and kindness. Within Japan, the Deming Prize continues to exert considerable influence on the disciplines of quality control and quality management.

In June 1980, the acclaimed documentary "If Japan Can, Why Can't We" reintroduced Dr Deming to America. He quickly became the voice of quality and sparked the quality revolution. Playing a major role in the resurgence of the American automobile industry in the late 1980s, Dr Deming consulted with corporations such as Ford, Toyota, Xerox, Ricoh, Sony, and Proctor & Gamble, whose businesses were revitalized after adopting his management methods.

A number of Japanese manufacturers applied his techniques widely and experienced heretofore unheard-of levels of quality and productivity. The improved quality combined with the lowered cost created new international demand for Japanese products.

Dr William Edwards Deming had already been celebrated by the Department of Management Studies in 2011 itself. They did conduct a Three-day International Conference – "Quality Management System" - in 2011 (12 – 14 October) commemorating 111th Birth Anniversary of Dr William Edwards Deming. A book, QUALITY MANTRA in 21st Century [ISBN 978-81-91-0827-2-2] was published compiling the 86 papers received. The book was financed by Quality Council of India, Govt of India. The complete details are available in Chapter-17 in the Book "W EDWARDS DEMING - Father of Quality Management" published on the of Founder-Chancellor's Birthday (25 Sep 2024).

Now, the book – having 24 chapters running into 226 pages - provides a detailed profile of Dr Wiiliam Edwards Deming. Also, the book is dedicated to WALTER A SHEWHART, a renowned international fame quality guru.

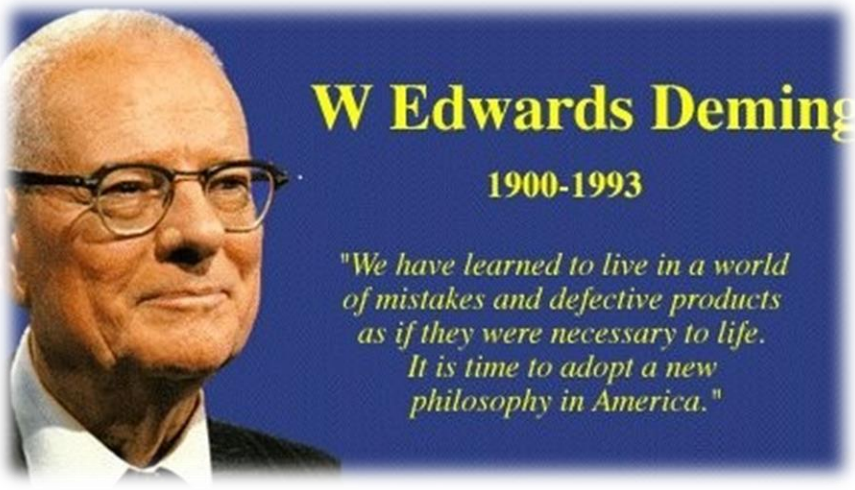
Prof Dr S Asrafi

Prof Dr S Ramalingam

Tributes

to

W Edwards Deming


W Edwards Deming
1900-1993
"We have learned to live in a world of mistakes and defective products as if they were necessary to life. It is time to adopt a new philosophy in America."

A Tribute to W Edwards DEMING

by

Luciana Paulise

luciana.paulise@biztorming.com.ar

on 17 November, 2014

https://biztorming.com/2014/11/17/a-tribute-to-deming/

November is the Global Quality Month, it's a time to celebrate and showcase quality and continuous improvement efforts.

That's why I would like to start my blog in November, writing about the man who inspired this celebration, Edwards W. Deming.

The Global Quality month started in 1960, when Japan was celebrating the 10th anniversary of the National Quality Award named after Deming. This award was given every November since 1950 to companies applying Deming teachings in Japan. At that time, when Japan was devastated morally and economically after the war, Edwards Deming gave them a reason to continue fighting and survive no matter what.
The JUSE

Japanese didn't have many natural resources, and their products were really poor quality, so their companies were not able to compete with other countries. In order to go back

to the global market, they started to look for "outsiders" to help them improve the quality of their products. The JUSE, Japanese Union of Scientist and Engineers heard that Deming, an American statistician was visiting Japan, so they asked him to deliver some training in statistics to the members of the Union. He accepted right away, and offered to also deliver some training sessions to directors of the most important companies in the country. The outcome of these training was so successful that he actually transformed Japan's economy.

He taught them to use statistics for consumer research, quality control, sampling to gauge the true demands of consumers, change the design of products and adjust their output, you name it. Every industry learned to use his tools, from heavy industries to hospitals, from front line employees to managers, from big to small business.

The Deming Prize

During his very first visit, Deming was offered to get paid for the trainings he delivered, but he refused, he only accepted payment for his travel expenses. So that money was donated to the creation of the Deming prize. The Deming prize has stimulated effort on the part of hundreds of companies to improve their product, and with the creation of the Global Quality month, it continues to foster continuous improvement all around the globe.
Nowadays several countries have their own price, such as the United States with the Malcolm Baldridge and Argentina with the National Quality Award.
Since his first visit, Deming went 19 times in total to Japan. He also visited several other countries like Australia, Argentina, Chile, Mexico to deliver his trainings. In US he not only delivered training but also provided consulting services to companies like Ford, American Express, Young and Rubican, various railcar companies, hospitals and other national bureaus. They all discovered the paradox, know for years to the japanese, that higher quality means lower costs.

The Deming Institute

In the US Deming is nowadays remembered by The Deming institute, an organization lead by his grandson Kevin Cahill which I had the pleasure to meet this fall.

Visit to the Library of Congress

I was looking forward to apply his methodology to Biztorming so I came up with the Institute. I learned that they were offering grants to go to the Library of Congress in Washington DC to read Deming Manuscripts. I sent a proposal to do research and happily I was accepted! I was lucky enough to be able to also attend the annual conference in LA in October this year, and visit the Library of Congress in November. I even visited his house in Washington DC.

****

Tribute to Quality Master
Dr William Edwards Deming

Gaurav Pandey

Independent Consultant DRE | ESG | MEP | Green Buildings | Net Zero | Clean Energy | Carbon Credit | Climate Change (Ex-L&T, Ex-GM Mlinda India, Ex-Hamara Grid, Ex-Archetype, Ex-ClimateX)

Published Jun 25, 2015

• **William Edwards Deming (1900 – 1993)** is an American statistician, professor, author, lecturer and consultant.

• Deming made a significant contribution to Japan's reputation for innovative high-quality products and its economic power. He taught top management how to improve design (and thus service), product quality, testing and sales through various methods, including the application of statistical methods.

• "Dr W. Edwards Deming taught that by adopting appropriate principles of management, organizations can increase quality and simultaneously reduce costs (by reducing waste, rework, staff attrition and litigation while increasing customer loyalty). The key is to practice continual improvement and think of manufacturing as a system, not as bits and pieces."

• When people and organizations focus primarily on quality, defined by the following ratio, quality tends to increase and costs fall over time. However, when people and organizations focus primarily on costs, costs tend to rise and quality declines over time.

• He is very famous for his **PDCA Cycle (Plan–Do–Check–Act)**– also known as **Shewhart Cycle**

****

A Tribute to W Edwards Deming

Mike Micklewright of Quality Quest (www.mikemick.com) mixes comedy and education in this production, "An Evening with Dr Deming".

Video: 7-minute, 21-second

https://www.youtube.com/watch?v=GXVgsPxQR54

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A Toast to

Dr W Edwards Deming

in Honor of his Birthday

This post is a speech written by Brian L. Joiner (1937-2023) and delivered on December 15, 2004, for the Madison, Wisconsin area Quality Improvement Network.

https://deming.org/a-toast-to-dr-w-edwards-deming-in-honor-of-his-birthday/

It is a great pleasure to offer a toast to Dr Deming. He was a friend and mentor for 30 years. I cried when he died and would cry again today if I were here with you. And I am not alone. Dr Deming touched many people's lives in a very deep way.

Some people say Deming was a statistician – and that he was – a great one. But he was much more than a statistician, just as Mahatma Gandhi was much more than a lawyer. There are many parallels – both started out in rather technical fields – but their work took them into uncharted territory. Both had a deep caring for people and their belief in people allowed them to touch many people deeply. Both made Nobel Prize level contributions to peace and the betterment of human kind.

A toast to Dr Deming would not be complete without recourse to a few of his famous sayings:

"Best efforts are not enough; you have to know what to do."

Dr Deming was a great learner – I saw him continue to learn almost daily, up until he died at 93 – and maybe beyond for all I know.

"Willing workers, just doing their best."

He would meet with the workers in factories, in routine clerical jobs, in any job – and he would ask them, "Can you take pride in your work?" Then they would tell him the problems they encountered in their everyday work – these willing workers, just doing their best. He may have been the only person who ever asked them that question. They trusted him – and he learned things their managers needed to know but few were ever curious enough to ask. Where managers did ask, there was a wonderful change. In one moving instance, a gruff 50+ year old employee said, "We used to have to check our brains at the door, but now people care what I think, now I look forward to coming to work!"

"There is no substitute for knowledge."

A chemical company manager (Jerry Brock) decided to teach "the willing workers" about the chemistry that was behind the products they made – the result – greatly increased employee satisfaction *and* improved quality and productivity – they had some knowledge! Dr Deming used to say it is important to promote education. Pay for the tuition. It doesn't matter what they study – Plato or basket weaving; it'll make them better, more productive employees.

"You can work with a man who knows his limitations."

(Dr Deming never made the switch to more gender-neutral language.) For years I found this statement strange – what's he really trying to say here? I don't know why it was so hard – but now it's totally clear. Maybe I just had to work with a few more people who were totally over their heads and didn't know it.

- "A numerical goal without a method is nonsense."
- "The most useful numbers are unknown and unknowable."
- "Where there is fear, you do not get honest figures."

These three are closely connected and still not understood by most managers and most professors of business. The simplicity of Management by Results is so compelling – too bad it just doesn't work.

So here is to the most amazing and wonderful man I have ever known – a man who raised my spirits and taught me so much – Dr W. Edwards Deming.

****

Kindly visit the following Web Pages to MORE Tributes:

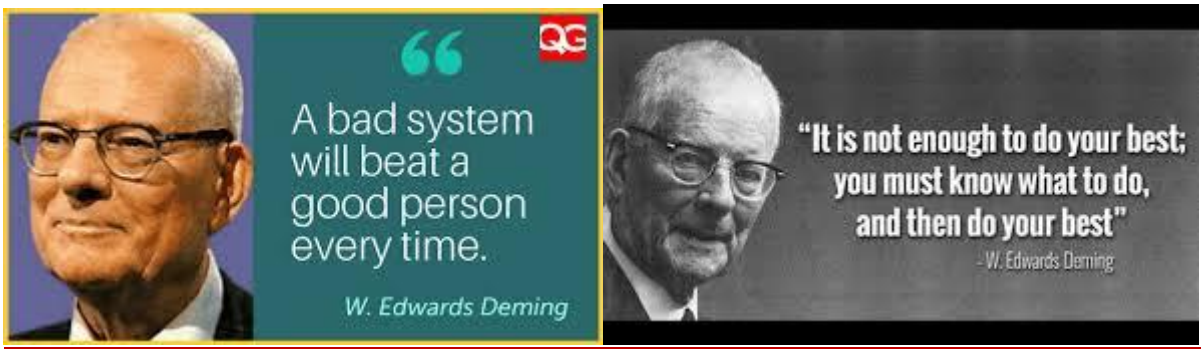
https://web.crc.losrios.edu/~larsenl/ExtraMaterials/WEDeming_shortbio_Ff4203.pdf

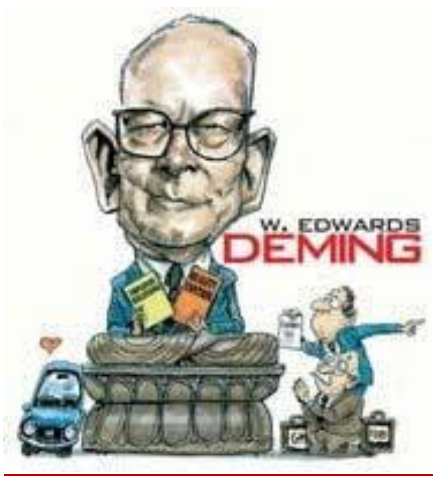
https://findingaids.loc.gov/exist_collections/ead3pdf/mss/1997/ms997017.pdf

https://www.qad.com/blog/2017/10/dr-w-edwards-deming-hero-quality

https://nap.nationalacademies.org/read/5427/chapter/15

https://www.academia.edu/103571615/THE_EVOLUTION_OF_QUALITY_MANAGEMENT_A_TRIBUTE_TO_50_NOTABLE_CONTRIBUTORS_Atena_Editora_


QG
A bad system will beat a good person every time.
W. Edwards Deming
"It is not enough to do your best; you must know what to do, and then do your best"
- W. Edwards Deming



Academic Contributions of Deming

Understanding the contributions of W. Edwards Deming to the practice of analytics is not as simple as it as first appears.

SEVEN deadly Deceases

While the 14 Points for Management can be said to express Dr. Deming's philosophy of transformational management, his Seven Deadly Diseases of Management describe the most serious barriers that management faces to improving effectiveness and continual improvement. Dr. Deming's video discusses in detail the first Five Deadly Diseases. He did not include Deadly Diseases 6 and 7 in the video, which, he said in *Out of the Crisis* were, "Peculiar to industry in the U.S., and beyond the scope of this book."

In the third chapter of *Out of the Crisis*, titled "Diseases and Obstacles," Dr. Deming explores, in great detail, the diseases listed below:

1. Lack of constancy of purpose to plan product and service that will have a market and keep the company in business, and provide jobs.

2. Emphasis on short-term profits: short-term thinking (just the opposite from constancy of purpose to stay in business), fed by fear of unfriendly takeover, and by push from bankers and owners for dividends.

3. Evaluation of performance, merit rating, or annual review.

4. Mobility of management; job hopping.

5. Management by use only of visible figures, with little or no consideration of figures that are unknown or unknowable.

6. Excessive medical costs. As reported by Dr. Deming in *Out of the Crisis* (pages 97-98), executives shared with him that the cost of medical care for their employees was amongst their largest overall expenses, not to mention the cost of medical care embedded in the purchase price of what they purchased from their suppliers.

7. Excessive costs of liability, swelled by lawyers that work on contingency fees.

RED-BEAD Experiment

Beginning in the early 1980s, Dr. Deming used his infamous Red Bead Experiment to clearly and dramatically illustrate several points about poor management practices, including several of the Seven Deadly Diseases, with great disregard for the 14 Points of Management.

Lessons from the Red Bead Experiment include the fallacy of rating people and ranking them in order of performance for next year (based on previous performance), as well as attributing the performance of the system to the performance of the "willing workers" in this simulation of an organization governed by what Dr. Deming referred to as the "prevailing system of management."

The Red Bead Experiment uses a control chart (also known as a process behavior chart) to show that even though a "willing worker" wants to do a good job, their success is directly tied to and limited by the nature of the system they are working within. Real and sustainable improvement on the part of the willing worker is achieved only when management is able to improve the system, starting small and then expanding the scope of the improvement efforts.

The use of a control chart represents an application of statistical theory, a tool for timely judgment of performance variations to be made according to the Deming System of Profound Knowledge.

The FUNNEL Experiment

The Funnel Experiment was devised by Dr. Deming to describe the adverse effects of making changes to a process without first making a careful study of the possible causes of the variation in that process. He referred to such process "worsening" efforts as "tampering."

In the physical experiment, a marble is dropped through a funnel onto a sheet of paper, which contains a target. The objective of the process is to get the marble to come to a stop as close to the target as possible. Given the resulting variation from target, the experiment uses several "adjustment" methods to attempt to manipulate the funnel's location to achieve the objective of the dropped marble falling closer and closer to the target.

The learning or "rules" of the experiment can be applied to many different types of common knee-jerk reactions (tampering) on the part of management, all of which are impediments to effective management and continual improvement, including:

1. Adjusting a process when a result is out of the range of its requirements
2. Making changes without the aid of control charts to monitor variation
3. Changing organization policy based on the latest employee satisfaction survey
4. Modifying the quota to reflect current output of the system
5. Using variances from previous budgets or expenditures to set new budgets
6. Relying on history passed down from generation to generation to create today's standards

The Deming System of Profound Knowledge [SoPK]

The Deming System of Profound Knowledge (SoPK) is the culmination of Dr. W. Edwards Deming's lifelong efforts to define a comprehensive theory of management which embraces his 14 Points for Management and acknowledges the Deadly Diseases he offered as symptoms of poor management.

As first articulated in the late 1980s and early 1990s, Dr. Deming's System of Profound Knowledge provides a highly integrated framework of thought and action for any leader wishing to transform an organization operating under the prevailing system of management into a thriving, systemically focused organization. His book, The New Economics, presents a detailed explanation of his System of Profound Knowledge.

According to Dr. Deming, in the fourth chapter of The New Economics,

"The first step is transformation of the individual. This transformation is discontinuous. It comes from understanding of the system of profound knowledge. The individual, transformed, will perceive new meaning to his life, to events, to numbers, to interactions between people."

Once the individual understands the system of profound knowledge, he will apply its principles in every kind of relationship with other people. He will have a basis for judgment of his own decisions and for transformation of the organizations that he belongs to. The individual, once transformed, will:

- Set an example
- Be a good listener, but will not compromise
- Continually teach other people
- Help people to pull away from their current practice and beliefs and move into the new philosophy without a feeling of guilt about the past

Dr. Deming's holistic approach to leadership and management ties together seminal theories in four interrelated areas: appreciation for a system, knowledge of variation, theory of knowledge and psychology. The System of Profound Knowledge promotes transformation through an essential outside "lens" which can benefit anyone and any organization. In chapter 4 of *The New Economics*, Dr. Deming adds,

"One need not be eminent in any part nor in all four parts in order to understand it and apply it. The 14 points for management (Out of the Crisis, Ch. 2) in industry, education, and government follow naturally as application of this outside knowledge, for transformation from the present style of Western management to one of optimization."

This transformation includes:

- Providing a new, outside view.
- Transforming managers to leaders.
- increasing quality, customer loyalty, worker satisfaction and, ultimately, profitability
- Reducing costs by reducing waste, rework and staff attrition and litigation.
- Removing fear and competition from the workplace and classroom.
- Realizing the power and pleasure derived from intrinsic motivation.
- Cultivating the value and results of cooperation and collaboration.
- Thinking in new ways and taking action based on confirmed knowledge.
- Understanding the importance of a better system for achieving better outcomes.
- Working towards continual improvement - individually and collectively.
- Supporting individuals and organizations through the first disruptive steps of transformation.
- Creating opportunities for continued, lifelong learning to bring long-term meaning, satisfaction and joy.

- Addressing different learning styles (generational) and cultivating the next generation of leaders.
  Dr. Deming's System of Profound Knowledge provides a distinctive map of theory for people in all organizations to continually improve, with the aim for everybody to win.

W. Edwards Deming's Contributions to the Practice of Analytics

In this post, we continue our profiles of individuals who have made contributions to the *practice of analytics* by discussing the life and work of W. Edwards Deming. As I will explain below, it may be helpful to think of statistical quality control in the 1950's and 1960's as playing some of the same role that predictive analytics did in the last decade and that AI does in this decade.

Deming made a number of contributions to the *practice of analytics*, but in my opinion, three of the most important were:

1. Developing and refining a process loop (Deming Cycle) for improving quality.
2. Organizing Walter Shewhart's notes about statistical process control and editing them to produce an influential book that was published in 1939. The book is still available as a Dover reprint for less than $15 and still worth reading.
3. Bridging sampling methodology with the practical practice of statistical quality control and teaching thousands of people about it in seminars, tutorials, and consulting engagements, including in a series of influential seminars in Japan after World War II.

Why does Deming and his influence on statistical process control in the 40's – 80's matter today? The reason is simple. We have good software frameworks for building analytic models and many textbooks about deep learning, but little practical advice about how to build high quality *systems* with embedded deep learning. To say it simply, we could use some Demings for deep learning.

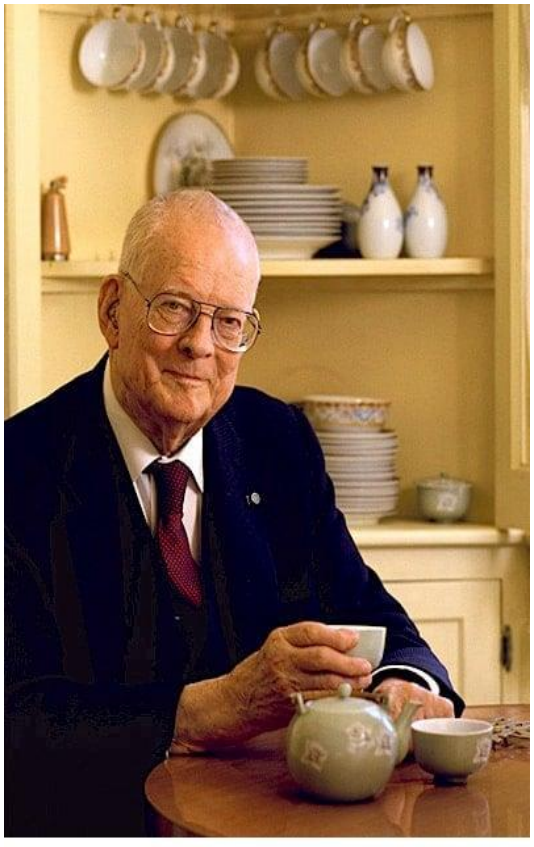
In this post, I'll cover four facts about Deming that provide a perspective on his importance on the practice of analytics. From the viewpoint of the analytic diamond, Deming had a deep knowledge and important insights both about analytic modeling (the technical foundations and methodology) and analytic operations (part of the practice of analytics). But this is not the reason that most people in analytics know his name today. First, he was in the right place at the right time –with the US government during the World War II where quality was critical for the industrial productivity required to beat the Axes powers and in Japan during its postwar reconstruction where quality was critical for pivoting Japanese industry towards high quality manufacturing. Second, his emergence as a guru was catalyzed by a 1980 NBC documentary about him. Prior to the documentary, he was relatively unknown.

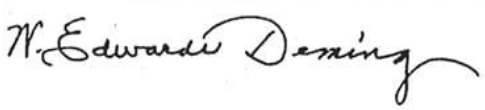
William Edwards Deming

Biography

"William Edwards Deming (1900-1993) is widely acknowledged as the leading management thinker in the field of quality. He was a statistician and business consultant whose methods helped hasten Japan's recovery after the Second World War and beyond. He derived the first philosophy and method that allowed individuals and organisations to plan and continually improve themselves, their relationships, processes, products and services."

[Source: W. Edwards Deming, https://www.bl.uk/people/w-edwards-deming.]





14 Oct 1900 <:::> *20 Dec 1993*

William Edwards Deming was born in Sioux City (Iowa), a small town in the Middle West. His senior year's mathematics teacher at high school encouraged him to go to university, in spite of his parents' slender resources. Eventually he received a PhD in 1928 at the Yale university, in the field of Theoretical Physics.

Among many jobs that were offered to him after university, Deming chose to carry out laboratory research in the Department of Agriculture. He worked there for ten years, on the development of nitrate fertilizers. At the time, the yields in agriculture had made big progress thanks to a new science, modern Statistics. In addition, Deming used to give lectures of Statistics at the institute founded by the Department of Agriculture for training agricultural engineers.

In 1939, Deming joined the Bureau of the Census in Washington. His knowledge of Statistics was helpful in the development of a new kind of survey, based on sampling. The statistical techniques of the Census were adopted worldwide. In 1946 he retired from the Administration and became consultant in Statistical Studies and Professor of Statistics at New York University.

During the Second World War, Deming stayed in Washington and used his knowledge for the service of the arms industry. Jointly with his friend Walter A. Shewhart, a statistician, a member of the technical staff of the Bell Telephone Laboratories, he organized management seminars at the Stanford University with the aim of improving productivity and the quality of military equipment. This project was the outcome of studies they had been making together since 1938. Their conclusions were radically opposed to the Taylor's management principles. Several thousands of engineers and managers from arm factories made the trip to Stanford and attended the seminars. The project had a limited impact because the senior executives did not commit themselves. Productivity did not improve ; quality did not improve ; but Japan was defeated.

In 1947, Deming was sent to Tokyo as advisor to Allied Forces Headquarters on the application of his sampling techniques. His stay gave him the opportunity of meeting some Japanese managers who had good relations with the Keidanren, the large employer's union. They were interested in his management theories which they heard about before the war. They invited him to give lectures and seminars in Japan. Having learnt from his experience in Stanford, he accepted under the condition that general managers attend his lectures. The first lecture was held in July 1950.

The Japanese industry adopted the Deming management theories immediately and ten years later Japanese products started to flood into America. The American consumers made no mistake: they were better and cheaper. It's a turning point in world history.

In the years before his death, Deming was in demand as a consultant and lecturer. Among the quality control masters, only Deming gained anything approaching cult status. His notoriety in the popular media dated to a 1980 NBC television documentary called "If Japan Can, Why Can't We?" in which he was featured prominently. The attention sometimes focused on his bluntness and brusque lecturing style, ignoring the substance of his message and leaving some misperceptions about the man, according to those who knew him well.

"Deming tends to be thought of as confrontational; in fact, he is a very kind and thoughtful person. He has always taken the time to help anyone who showed a desire to learn. It is no coincidence that so many people have come to think so highly of him. If he appears

impatient, particularly with management, it could be that he sees a large task ahead of him and not much time left," quality consultant William Latzko said. "He's a very ethical man. He practices what he preaches," Edward Baker of the Ford Motor Co., a frequent Deming client, said.

In rare moments when he was not pursuing his mission, Deming polished his skills as an organist and music composer. His version of the national anthem, which addresses people's inability to hit all the notes, serves as a metaphor for one of his points for management: don't blame the singers (workers) if the song is written poorly (the system is the problem); instead, rewrite the music (fix the system). In life and in art, Deming simply wanted to make it easier for people to sing.

Until 1980, Deming's theories had been prohibited in American companies because their leaders had remained unquestioning followers of Taylor's management principles. But an American journalist, Clare Crawford-Mason, made Deming known by the general public thanks to a TV programme called "If Japan can, why can't we ?". The American CEO's could not ignore him anymore. At the request of many senior managers, Deming started to give four-day seminars open to the public where he explained his ideas in front of several hundred people. From 1981 to 1993, he gave 250 seminars. It has been stated that 120,000 people attended these seminars, an amazing number! He also gave many lectures in American companies which had adopted his management philosophy. Under his influence, the management style has profoundly changed for a few years in the United States, even if much progress has still to be done.

The Deming's teaching deals with management, not only with quality. Contrary to a generally accepted idea, his goal was not to improve the present style of management by adding a new component, but to transform management practices from top to bottom. The primitive meaning of the verb "manage" is "put a house in order and let the occupants live together in harmony". In a company, according to Deming, managing means having the processes under control, coordinating the operations and preparing the future. He said that management does not concern only production and service companies but also public administration and education. Since his first seminars in Japan, many universities have been teaching management as a science. The Deming Prize is the highest award that a company can obtain for its excellence in management.

In English speaking countries, most people are well aware of management practices, even in small companies. On the contrary many people in Latin countries restrict management to supervision. It is fortunate that French people adopted the English word some decades ago, because some words they had used previously were misleading.

Deming says that the prevailing style of management leads the worlwide economy to a dead end, because the emphasis put on competition and leadership by money causes huge financial losses, poverty and unemployment. The style of management he recommends stresses knowledge, which he considers the most important resource a company has. He promotes the idea that companies should develop knowledge in a climate of cooperation. This is the goal of the famous Deming's 14 Points.

Finally it is important to to see that the Deming's style of management is extremely favourable to social cohesion. Violence is part and parcel of the traditional style of management. Psychologists know that violence on the job - even if it is just symbolic - brings about behavioural problems in everyday life. Incidentally, the Deming's style of

management contributes to improving human relations in society by softening the climate of violence and fear that is raging in companies.

Many personalities from all over the world attended his funeral in Washington, December 1993. The Japanese association which founded the Deming Prize, the JUSE, published a report of the ceremony, in January 1994, in a special issue of its magazine Societas Qualitatis.

Dr. Deming's contributions to science, statistics, and economics were important, but his development of a comprehensive theory of management overshadows all else. This theory has already changed the lives of millions of people. Applied to education, it promises to change future generations. Dr. Deming is gone. His legacy lives on.

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Please visit the following Web Links to know MORE about him:

W. Edwards Deming: The Story of a Truly Remarkable Person

Author
Robert B. Austenfeld, Jr.

[54 Pages]

https://web.crc.losrios.edu/~larsenl/ExtraMaterials/WEDeming_shortbio_Ff4203.pdf

01] https://www.nae.edu/188359/W-EDWARDS-DEMING-19001993

02] https://www.britannica.com/topic/Columbia-University

03] https://deming.org/deming-the-man/

04] https://www.toolshero.com/toolsheroes/william-edwards-deming/

05] https://asq.org/about-asq/honorary-members/deming

06] https://en.wikipedia.org/wiki/W._Edwards_Deming

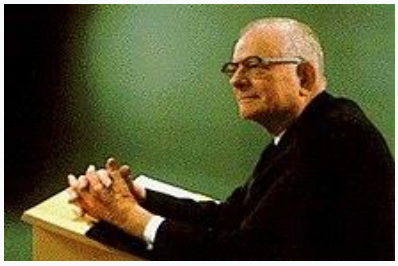
07] https://www.youtube.com/watch?v=aRgSM1hkVYM [Video]

A Discussion with
Dr W Edwards Deming
Detroit, Michigan
11 Aug 1981

Deming on Statistics in Industry: Implications for Statisticians and for Statistical Education.

W. Edwards Deming with Gary McDonald (Chair), Fred C. Leone, Churchill Eisenhart and Lloyd Nelson (1981), **49 minutes**

William Edwards Deming



Born	William Edwards Deming October 14, 1900 Sioux City, Iowa, U.S.
Died	December 20, 1993 (aged 93) Washington, D.C., U.S.
Alma mater	• University of Wyoming (BS) • University of Colorado (MS) • Yale University (PhD)
Known for	PDSA, total quality management, quality control
Spouses	• Agnes Bell (m. 1922; died 1930) • Lola Elizabeth Shupe (m. 1932; died 1986)
Children	3
Scientific career	
Fields	Business administration and theory, economics, industrial engineering, music, statistics

The Deming Cooperative

https://demingcooperative.org/

Dr W Edwards Deming was a world renown expert and pioneer in quality management. Many misconceptions exist about his teachings. As time passes, Dr Deming's message is misstated, and misinformation spreads quickly.

The aim is to preserve and expand his ideas, while preparing for the rediscovery of Dr W Edwards Deming's teachings,especially his ideas of quality, productivity and competitive position through humanistic management and dignity of work.

Vision of this Web Page is:

"Carrying Forward Dr Deming's Teachings and Consistency"

Containing:

A] Articles of Dr Deming

Dr Deming published over 170 articles, wrote numerous unpublished papers for his students and clients, and conducted hundreds of studies for clients. These and numerous other writings by Dr Deming are in the National Archives, The Library of Congress (LOC) in Washington, DC. To access this collection, contact The Deming Institute for more information.

The W. Edwards Deming Institute created PDF files of these, and a selected number of others. They can be downloaded on The Deming Institute webpage. https://deming.org/deming-articles/

B] Books by Dr Deming

C] Books about Dr Deming

https://demingcooperative.org/books/books-about-dr-deming-the.html

D] Books Referenced by Dr. Deming in His Books

https://demingcooperative.org/books/books-referenced-by-dr.html

E] Applied Scholar-Practitioner Symposium
https://demingcooperative.org/symposium.html

F] Creating an archive of stories about interactions with Dr. Deming and using his ideas.
https://demingcooperative.org/deming_stories/

G] Deming's puzzles
https://demingcooperative.org/puzzle/

H] Deming Groups

There are a number of Deming users groups, study groups, work groups, alliances and associations. Some of these groups have experts in Deming's theories guiding their studies each month, while others have visiting experts. Some groups have periodic meetings, others meet sporadically. All groups are comprised of people interested in application or advancement of Dr. Deming's work.

https://demingcooperative.org/groups.html

I] Deming Scholars program at Fordham University

Graduates learned to create the appropriate strategy, culture, structure, processes and values needed to produce dynamic and meaningful change.

After starting their professional careers, these Deming Scholars join a small group of highly motivated students to take advantage of a unique opportunity to develop leadership skills and understanding of Dr. Deming's teachings within the framework of an outstanding MBA program in Management Systems.

The program owed its forward thinking to the involvement of one of America's most progressive management thinker - W. Edwards Deming. Faculty, students and corporate sponsors all add their own brand of commitment and expertise to the mix…and the result was a refreshing blend of competence and achievement.

https://demingcooperative.org/scholars/

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PHOTOS

With a Japanese Family

In a boat in Japan

Teaching in Japan

With his daughter

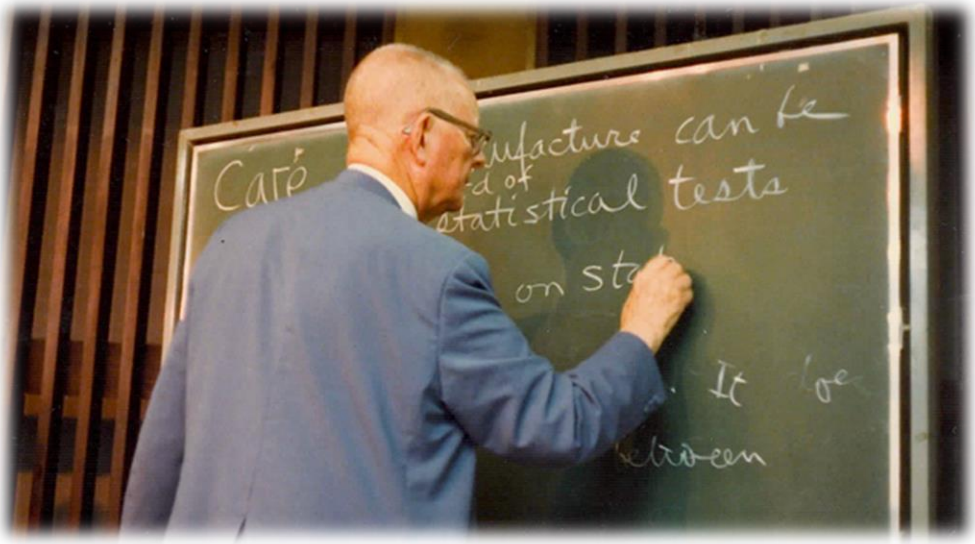
With Japanese Businessmen

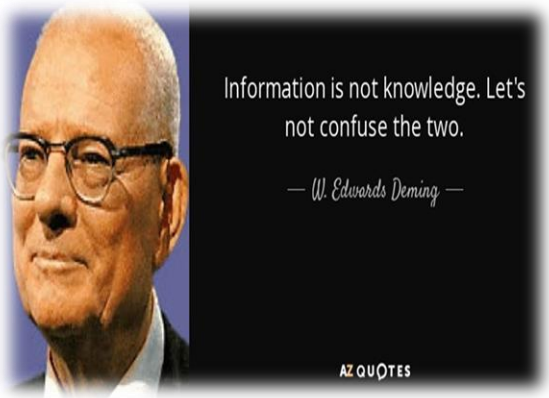
In Geneva, with his Wife

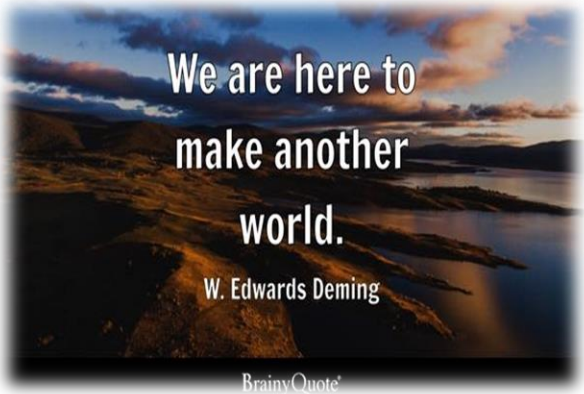
Receiving a Honorary Degree from Yale University [1991]

With his Wife & Daughter

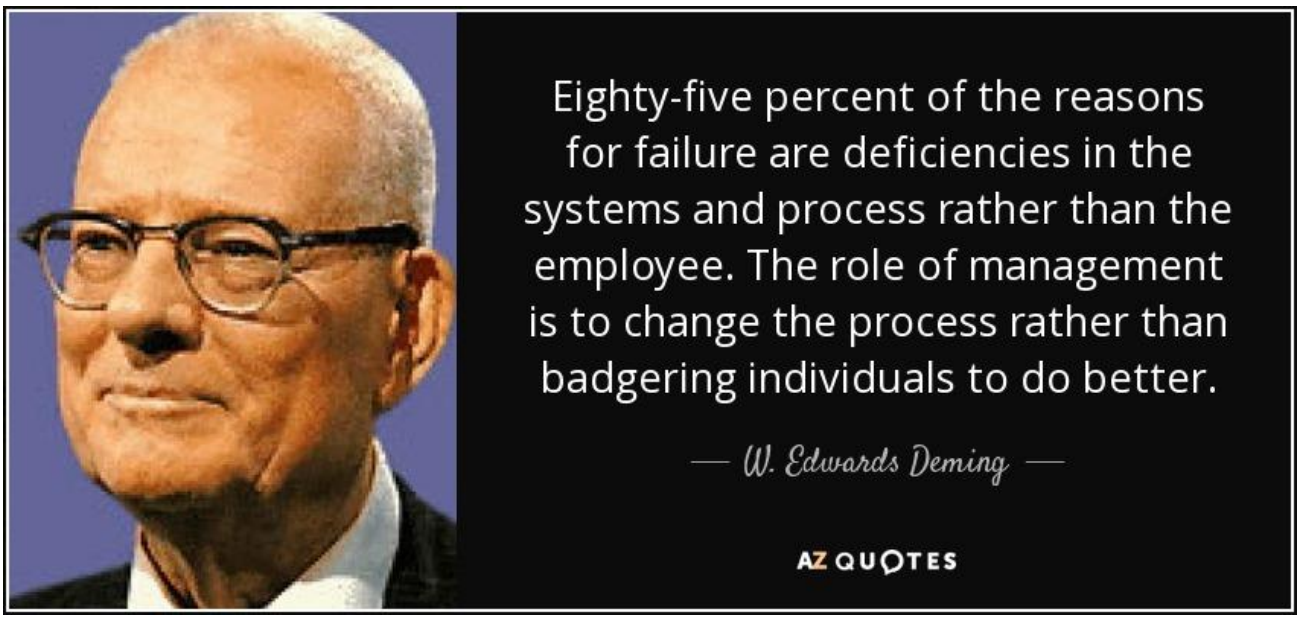
'QUOTES'







'We installed quality control.' No. You can install a new desk, or a new carpet, or a new dean, but not quality control. Anyone that proposes to 'install quality control' unfortunately has little knowledge about quality control.


Eighty-five percent of the reasons for failure are deficiencies in the systems and process rather than the employee. The role of management is to change the process rather than badgering individuals to do better.
— W. Edwards Deming —
AZ QUOTES

[A] dissatisfied customer does not complain: he just switches.

[G]ood quality and the right uniformity have no meaning except with reference to the consumer's demands.

[M]anagement by numerical goal is an attempt to manage without knowledge of what to do, and in fact is usually management by fear.

[T]he prime purpose in carrying out a survey or experiment is to find answers to certain questions in order to provide a basis for rational prediction, usually in order that action may be taken on the sources of the data [The System of Profound Knowledge] provides a map of theory by which to understand the organizations that we work in.

A bad system will beat a good person every time.

"If you can't describe what you are doing as a process, you don't know what you're doing."

"It is not enough to do your best, you must know what to do, and then do your best."

"Experience by itself teaches nothing... Without theory, experience has no meaning. Without theory, one has no questions to ask. Hence, without theory, there is no learning."

The worker is not the problem. The problem is at the top! Management!"

"She learns, after she finishes the job, that she programmed very well the specifications as delivered to her, but that they were deficient. If she had only known the purpose of the program, she could have done it right for the purpose, even though the specifications were deficient."

"Inspection to improve quality is too late, ineffective, costly. Quality comes not from inspection, but from the improvement of the production process."

As long as management is quick to take credit for a firm's successes but equally swift to blame its workers for its failures, no surefire remedy for low productivity can be expected in American manufacturing and service industries."

Performance of management should be measured by potential to stay in business, to protect investment, to ensure future dividends and jobs through improvement of product and service for the future, not by the quarterly dividend."

"Any substantial improvement must come from action on the system, the responsibility of management. Wishing and pleading and begging the workers to do better was totally futile."

"Failure of management to plan for the future and to foresee problems has brought about waste of manpower, of materials, and of machine-time, all of which raise the manufacturer's cost and price that the purchaser must pay. The consumer is not always willing to subsidize this waste. The inevitable result is loss of market. Loss of market begets unemployment."

The greatest waste ... is failure to use the abilities of people...to learn about their frustrations and about the contributions that they are eager to make.

Inspection with the aim of finding the bad ones and throwing them out is too late, ineffective, and costly. Quality comes not from inspection but from improvement of the process.

The aim of leadership should be to improve the performance of man and machine, to improve quality, to increase output, and simultaneously to bring pride of workmanship to people. Put in a negative way, the aim of leadership is not merely to find and record failures of men, but to remove the causes of failure: to help people to do a better job with less effort.

The biggest cost of poor quality is when your customer buys it from someone else because they didn't like yours.

If you wait for people to come to you, you'll only get small problems. You must go and find them. The big problems are where people don't realize they have one in the first place.

What we need to do is learn to work in the system, by which I mean that everybody, every team, every platform, every division, every component is there not for individual competitive profit or recognition, but for contribution to the system as a whole on a win-win basis.

Scientific data are not taken for museum purposes; they are taken as a basis for doing something. If nothing is to be done with the data, then there is no use in collecting any. The ultimate purpose of taking data is to provide a basis for action or a recommendation for action. The step intermediate between the collection of data and the action is prediction.

Our prevailing system of management has destroyed our people. People are born with intrinsic motivation, self-respect, dignity, curiosity to learn, joy in learning. The forces of destruction begin with toddlers - a prize for the best Halloween costume, grades in school, gold stars - and on up through the university. On the job people, teams, and divisions are ranked, reward for the top, punishment for the bottom. Management by Objectives, quotas, incentive pay, business plans, put together separately, division by division, cause further loss, unknown and unknowable.

Research shows that the climate of an organization influences an individual's contribution far more than the individual himself.

Eliminate slogans, exhortations, and targets for the work force asking for zero defects and new levels of productivity. Such exhortations only create adversarial relationships, as the bulk of the causes of low quality and low productivity belong to the system and thus lie beyond the power of the work force.

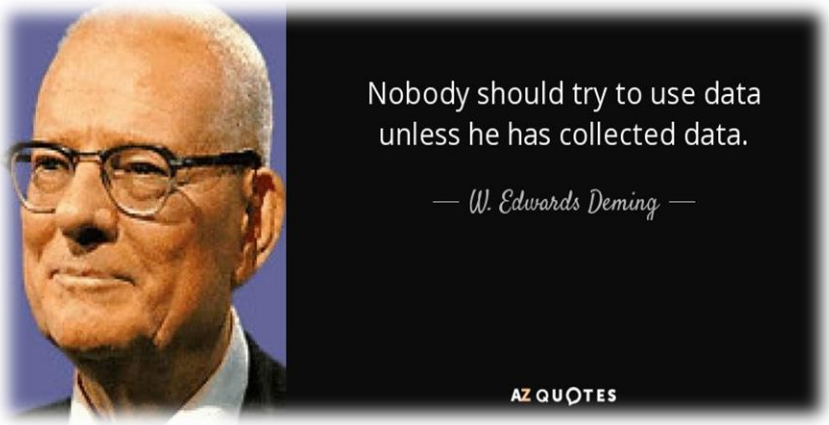
A system is a network of interdependent components that work together to try to accomplish the aim of the system. A system must have an aim. Without the aim, there is no system.

Long-term commitment to new learning and new philosophy is required of any management that seeks transformation. The timid and the fainthearted, and the people that expect quick results, are doomed to disappointment.

Eighty percent of American managers cannot answer with any measure of confidence these seemingly simple questions: What is my job? What in it really counts? How well am I doing?

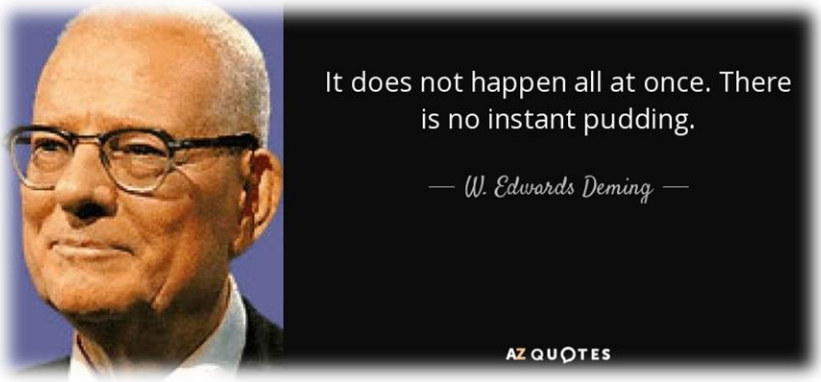
Part of America's industrial problems is the aim of its corporate managers. Most American executives think they are in the business to make money, rather than products or service. The Japanese corporate credo, on the other hand, is that a company should become the world's most efficient provider of whatever product and service it offers. Once it becomes the world leader and continues to offer good products, profits follow.

We cannot rely on mass inspection to improve quality, though there are times when 100 percent inspection is necessary. As Harold S. Dodge said many years ago, 'You cannot inspect quality into a product.' The quality is there or it isn't by the time it's inspected.



A manager of people needs to understand that all people are different. This is not ranking people. He needs to understand that the performance of anyone is governed largely by the system that he works in, the responsibility of management.

What makes a scientist great is the care that he takes in telling you what is wrong with his results, so that you will not misuse them.



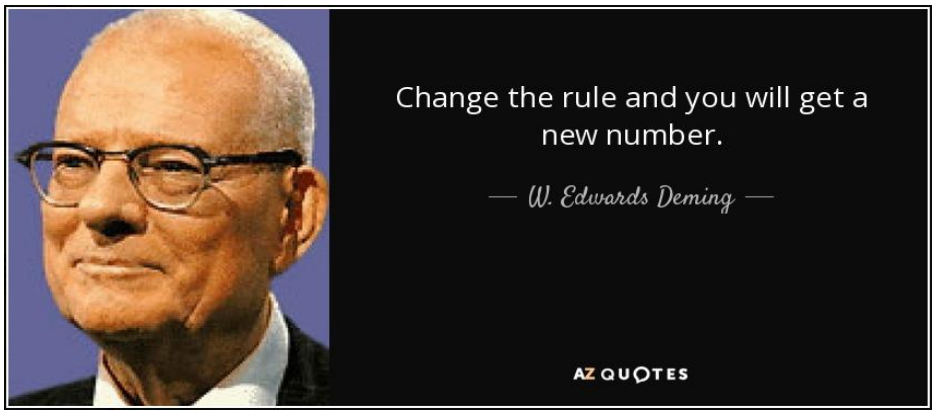
Knowledge is theory. We should be thankful if action of management is based on theory. Knowledge has temporal spread. Information is not knowledge. The world is drowning in information but is slow in acquisition of knowledge. There is no substitute for knowledge.

One cannot be successful on visible figures alone ... the most important figures that one needs for management are unknown or unknowable, but successful management must nevertheless take account of them.

It is not enough that top management commit themselves for life to quality and productivity. They must know what it is that they are committed to - that is, what they must do. These obligations cannot be delegated. Support is not enough; action is required.

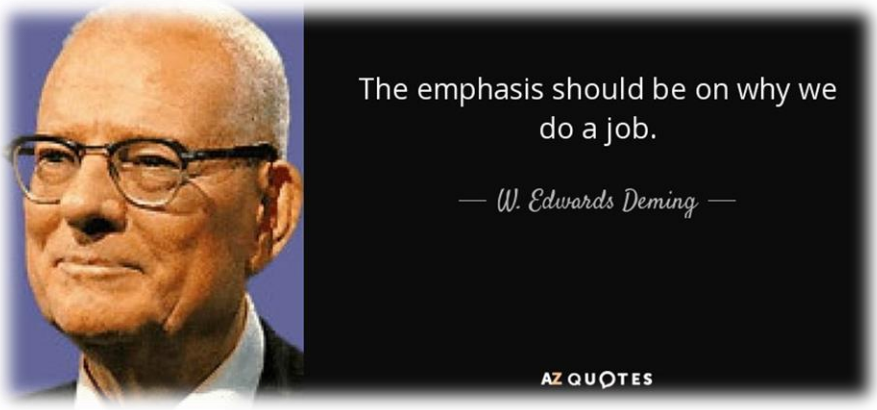
The source of innovation is freedom. All we have - new knowledge, invention - comes from freedom. Discoveries and new knowledge come from freedom. When somebody is responsible only to himself, [has] only himself to satisfy, then you'll have invention, new thought, now product, new design, new ideas.

Managers don't like giving appraisals, and employees don't like getting them. Perhaps they're not liked because both parties suspect what the evidence has proved for decades: Traditional performance appraisals don't work.



It is management's job to direct the efforts of all components toward the aim of the system. The first step is clarification: everyone in the organization must understand the aim of the system, and how to direct his efforts toward it. Everyone must understand the damage and loss to the whole organization from a team that seeks to become a selfish, independent, profit centre.

To successfully respond to the myriads of changes that shake the world, transformation into a new style of management is required. The route to take is what I call profound knowledge, knowledge for leadership of transformation.



Does the customer invent new product or service? The customer generates nothing. No customer asked for electric lights. There was gas and gas mantles, which gave good light.

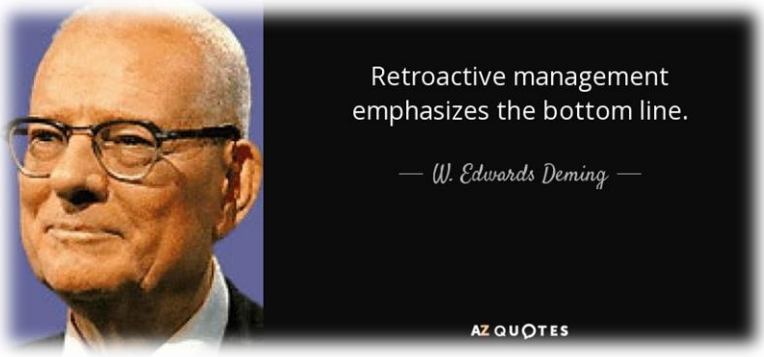
Foremost is the principle that the purpose of consumer research is to understand the customer's needs and wishes, and thus design product and service that will provide better living for him in the future. A second principle is that no one can guess the future loss of business from a dissatisfied customer.

For Quality: Stamp out fires, automate, computerize, M.B.O., install merit pay, rank people, best efforts, zero defects. WRONG!!!! Missing ingredient: profound knowledge.

New product and new types of service are generated, not by asking the consumer, but by knowledge, imagination, innovation, risk, trial and error on the part of the producer, backed by enough capital to develop the product or service and to stay in business during the learn months of introduction.

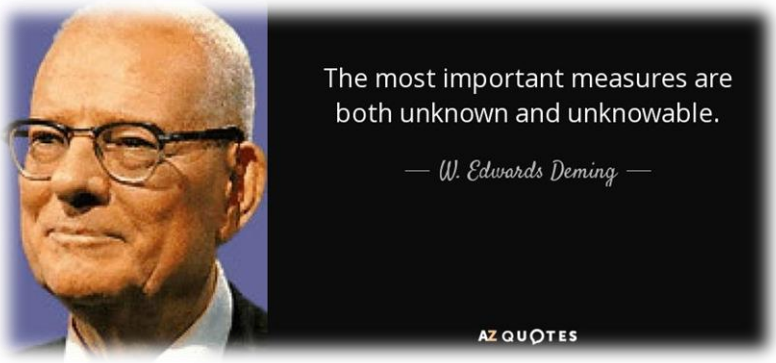
One need not be eminent in any part of profound knowledge in order to understand it and to apply it. The various segments of the system of profound knowledge cannot be separated. They interact with each other. For example, knowledge about psychology is incomplete without knowledge of variation.

Failure of management to plan for the future and to foresee problems has brought about waste of manpower, of materials, of the machine-time, of all which raise the manufacturer's cost and price that the purchaser must pay.



A system must be managed. It will not manage itself. Left to themselves in the Western world, components become selfish, competitive. We cannot afford the destructive effect of competition.

The principles and methods for improvement are the same for service as for manufacturing. The actual application differs, of course, from one product to another, and from one type of service to another.



He that expects to quantify in dollars the gains that will accrue to a company year by year for a program for improvement of quality expounded in [Out of the Crisis] will suffer delusion. He should know before he starts that he will be able to quantify only a trivial part of the gain.

14 Points

William Edward Deming

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W. Edwards Deming was an American statistician, electrical engineer and business professor who went to Japan after World War II to help with the country's census. He played a significant role in Japan's economic recovery and earned a reputation for increasing productivity and reducing expenses in manufacturing companies throughout Japan. His experiences led to him designing the "System of Profound Knowledge" and creating a list of 14 key principles for management. These total quality management principles can be put into place by any organization to more effectively implement total quality management. As a total quality management philosophy, Dr. Deming's work is foundational to TQM *and its successor, quality management systems.*

W. EDWARDS DEMING'S 14 POINTS

1. Create constancy of purpose for improving products and services.
2. Adopt the new philosophy.
3. Cease dependence on inspection to achieve quality.
4. End the practice of awarding business on price alone; instead, minimize total cost by working with a single supplier.
5. Improve constantly and forever every process for planning, production and service.
6. Institute training on the job.
7. Adopt and institute leadership.
8. Drive out fear.
9. Break down barriers between staff areas.
10. Eliminate slogans, exhortations and targets for the workforce.
11. Eliminate numerical quotas for the workforce and numerical goals for management.
12. Remove barriers that rob people of pride of workmanship, and eliminate the annual rating or merit system.
13. Institute a vigorous program of education and self-improvement for everyone.
14. Put everybody in the company to work accomplishing the transformation.

Deming became interested in how statistical analysis could be used to achieve better quality control in the 1930s. His quality-control methods helped post-World War II Japan rebuild its devastated economy.

1. **Create a constant purpose toward improvement.**
    - Plan for quality in the long term.
    - Resist reacting with short-term solutions.
    - Don't just do the same things better – find better things to do.
    - Predict and prepare for future challenges, and always have the goal of getting better.

    Constancy of purpose is about long-term systems thinking and continuously focusing on improving products and services. Rather than focusing on short-term solutions to current problems, organizations take a long-term approach, think strategically and allocate resources to research and education. Constantly cultivating innovation and placing customers first helps build trusting relationships and ensures an organization remains competitive and successful.

2. **Adopt the new philosophy.**
    - Embrace quality throughout the organization.
    - Put your customers' needs first, rather than react to competitive pressure – and design products and services to meet those needs.
    - Be prepared for a major change in the way business is done. It's about leading, not simply managing.
    - Create your quality vision, and implement it.

    Organizations can adopt a new way of thinking that prioritizes quality and service above all else. All employees in the organization can adopt the new philosophy and work together to reduce delays, low productivity and substandard products. Leadership is required to ensure all employees understand their role in surpassing customers' expectations.

3. **Stop depending on inspections.**
    - Inspections are costly and unreliable – and they don't improve quality, they merely find a lack of quality.
    - Build quality into the process from start to finish.
    - Don't just find what you did wrong – eliminate the "wrongs" altogether.
    - Use statistical control methods – not physical inspections alone – to prove that the process is working.

    Inspections that identify problems in a finished product or service are too late, as the quality is already in the product. Organizations can aim to implement systems that build quality into products and services throughout the production process. Improving the components and processes ensures the quality of the product at every stage, making inspections unnecessary.

4. **Use a single supplier for any one item.**
    - Quality relies on consistency – the less variation you have in the input, the less variation you'll have in the output.
    - Look at suppliers as your partners in quality. Encourage them to spend time improving their own quality – they shouldn't compete for your business based on price alone.
    - Analyze the total cost to you, not just the initial cost of the product.
    - Use quality statistics to ensure that suppliers meet your quality standards.

Organizations can see suppliers as partners and build relationships with reliable suppliers to ensure consistency and innovation. They can foster long-term relationships with suppliers who can meet the organization's quality standards and not allocate business based on price alone. Treat suppliers as part of the organization's system and assist and encourage them to improve their processes and quality.

5. **Improve constantly and forever.**
    - Continuously improve your systems and processes. Deming promoted the Plan-Do-Check-Act approach to process analysis and improvement.
    - Emphasize training and education so everyone can do their jobs better.
    - Use kaizen as a model to reduce waste and to improve productivity, effectiveness, and safety.

It's essential for organizations to constantly evaluate and improve systems and processes to maximize productivity, improve quality and decrease costs. Continual process improvement can take many forms, including training and education, understanding how customers interact with products and building relationships with suppliers. Constant improvement forever is a process that involves all levels in an organization.

6. **Use training on the job.**
    - Train for consistency to help reduce variation.
    - Build a foundation of common knowledge.
    - Allow workers to understand their roles in the "big picture."
    - Encourage staff to learn from one another, and provide a culture and environment for effective teamwork.

When organizations invest in training employees, it enables them to contribute everything they can offer. Building a foundation of common knowledge that helps employees understand the importance of consistency, the organization as a system and their role in it may help them improve their efficiency. Providing an environment and culture that promotes effective teamwork and allows employees to learn from each other is crucial.

7. **Implement leadership.**
    - Expect your supervisors and managers to understand their workers and the processes they use.
    - Don't simply supervise – provide support and resources so that each staff member can do his or her best. Be a coach instead of a policeman.
    - Figure out what each person actually needs to do his or her best.
    - Emphasize the importance of participative management and transformational leadership.
    - Find ways to reach full potential, and don't just focus on meeting targets and quotas.

For Deming, instituting leadership meant focusing on the importance of management that actively removes the causes of failure and helps employees do a better job. Managers understand their team members and their processes and strive to be leaders and coaches, not supervisors. Finding ways to help their team members reach their full potential can be their primary focus, not quotas and targets.

8. **Eliminate fear.**
    - Allow people to perform at their best by ensuring that they're not afraid to express ideas or concerns.
    - Let everyone know that the goal is to achieve high quality by doing more things right – and that you're not interested in blaming people when mistakes happen.
    - Make workers feel valued, and encourage them to look for better ways to do things.
    - Ensure that your leaders are approachable and that they work with teams to act in the company's best interests.
    - Use open and honest communication to remove fear from the organization.

Fear is unhelpful and hinders the success of an organization as decision-makers often don't get accurate data and honest figures. Whether the fear is of failure, reprisals or management, it may keep employees from acting in the organization's best interests and impact strategic decisions. Organizations can eliminate fear by encouraging open and honest communication, teamwork and mutual respect at all levels.

9. **Break down barriers between departments.**
    - Build the "internal customer" concept – recognize that each department or function serves other departments that use their output.
    - Build a shared vision.
    - Use cross-functional teamwork to build understanding and reduce adversarial relationships.
    - Focus on collaboration and consensus instead of compromise.

Producing high-quality products and services for external customers requires cooperation from all departments in an organization. To achieve this, organizations can focus on collaboration, building a shared vision and ensuring everyone understands how each part of the organization works. Breaking down barriers promotes the "internal customer" concept, where employees recognize that each department creates outputs that serve other departments.

10. **Get rid of unclear slogans.**
    - Let people know exactly what you want – don't make them guess. "Excellence in service" is short and memorable, but what does it mean? How is it achieved? The message is clearer in a slogan like "You can do better if you try."
    - Don't let words and nice-sounding phrases replace effective leadership. Outline your expectations, and then praise people face-to-face for doing good work.

Positive slogans, exhortations and targets may attempt to motivate but often have the opposite effect and create conflict and strained relationships. Systemic issues usually cause low-quality products and low productivity and not the employees. Thus, slogans and exhortations directed at employees without improving processes often result in frustration and resentment.

11. **Eliminate management by objectives.**
    - Look at how the process is carried out, not just numerical targets. Deming said that production targets encourage high output and low quality.
    - Provide support and resources so that production levels and quality are high and achievable.
    - Measure the process rather than the people behind the process.

Quotas and numerical targets emphasize quantity rather than quality leading to high outputs and lower quality products. This outcome is incompatible with striving for continuous improvement. Organizations can aim to measure the process, not individual employees. Providing leadership, resources and support may make high levels of quality and productivity achievable without quotas.

12. **Remove barriers to pride of workmanship.**
    - Allow everyone to take pride in their work without being rated or compared.
    - Treat workers the same, and don't make them compete with other workers for monetary or other rewards. Over time, the quality system will naturally raise the level of everyone's work to an equally high level.

Measuring employees using productivity targets or rewards often denies employees the opportunity to do their best and take pride in their work. Members of management who understand the organization as a system and give their team members the knowledge and tools to do their best may improve quality. Pride of workmanship increases employee satisfaction, and over time, a management system focused on quality may increase job satisfaction and productivity.

13. **Implement education and self-improvement.**
    - Improve the current skills of workers.
    - Encourage people to learn new skills to prepare for future changes and challenges.
    - Build skills to make your workforce more adaptable to change, and better able to find and achieve improvements.

Instituting ongoing education and self-improvement programs that encourage employees to learn new skills is essential for organizations striving for continuous improvement. Making training and self-development a fundamental part of an employee's job improves morale, optimizes performance and opens up growth opportunities. Building new skills also can make team members more adaptable, allowing them to detect problems and offer ideas for improvement.

14. **Make "transformation" everyone's job.**
    - Improve your overall organization by having each person take a step toward quality.
    - Analyze each small step, and understand how it fits into the larger picture.
    - Use effective change management principles to introduce the new philosophy and ideas in Deming's 14 points.

The transformation of an organization is everyone's job, and it takes hundreds of small individual steps to achieve consistent quality. Transformation is an interconnected process that requires the active participation of everyone in the company, but it's up to management to provide the leadership to drive the process. Deming suggests using change management principles to build skills, confidence and trust so that employees can put the new ideas into practice.

Some useful Web Links:

01] https://www.youtube.com/watch?v=2zHFYzqaxaE [Video]

02] https://deming.org/explore/fourteen-points/

03]https://www.uthsc.edu/its/business-productivity-solutions/lean-uthsc/deming.php

04]https://www.indeed.com/career-advice/career-development/demings-points-of-management

05]https://smartersolutions.com/services/business-system-iee/demings-14-points-explained-implementation/

06] https://www.youtube.com/watch?v=a9nGeJkZzss [Video]

07]https://hrishikeshkarekar.medium.com/are-14-points-of-management-from-dr-deming-in-out-of-the-crisis-1982-still-relevant-in-2023-d2b0582c899b

08]https://www.juran.com/blog/w-edwards-deming-from-profound-knowledge-to-14-points-for-management/

09]https://www.linkedin.com/pulse/do-dr-demings-14-points-management-apply-today-charlie-carpenter

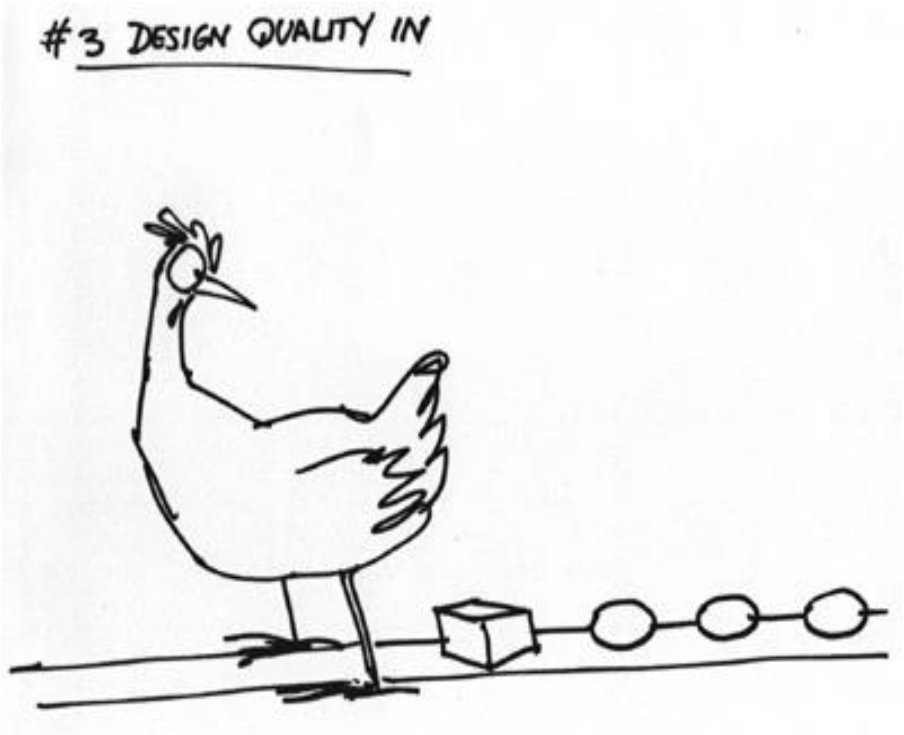
10]https://uta.pressbooks.pub/industrialengineeringintro/chapter/demings-14-points/

11]https://www.encyclopedia.com/history/dictionaries-thesauruses-pictures-and-press-releases/demings-14-points-management-c-1982-w-edwards-deming

12] https://mindwerx.com/dr-w-edwards-deming-14-points/

#1 CONSTANCY OF PURPOSE

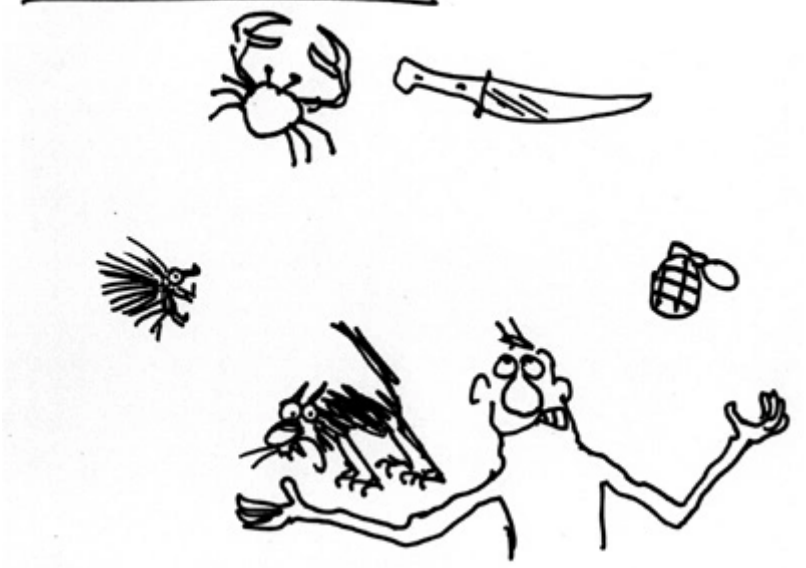
#2 EVERYBODY WINS
1
1
1



- We want to develop long term beneficial relationships with our suppliers.

#5 CONTINUOUS IMPROVEMENT

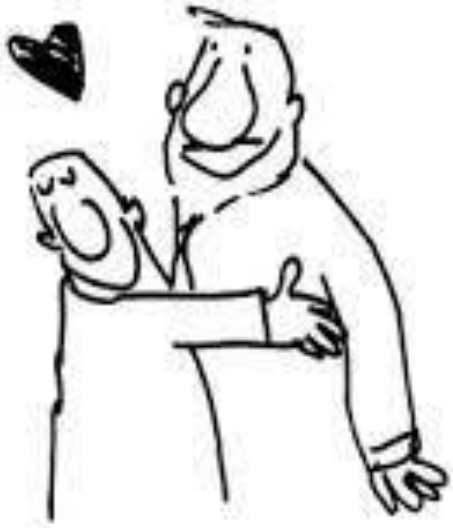
#6 TRAINING FOR SKILLS



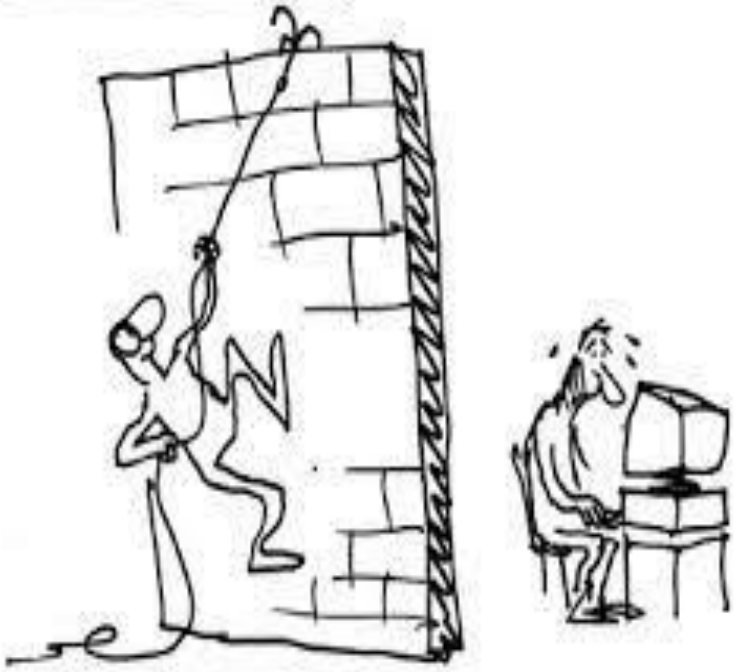
#7 INSTITUTE LEADERSHIP

- The leaders select the music, set the tone and insure that everyone is on board at every moment.

#8 DRIVE OUT FEAR

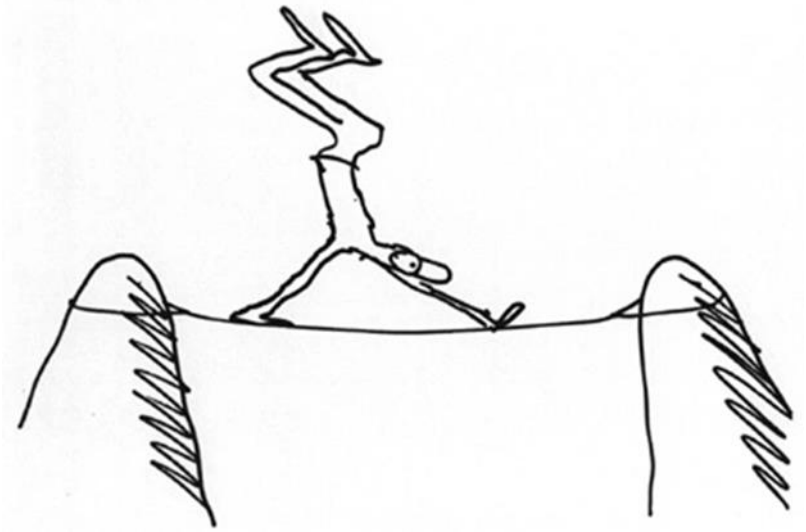


#9 BREAK DOWN BARRIERS



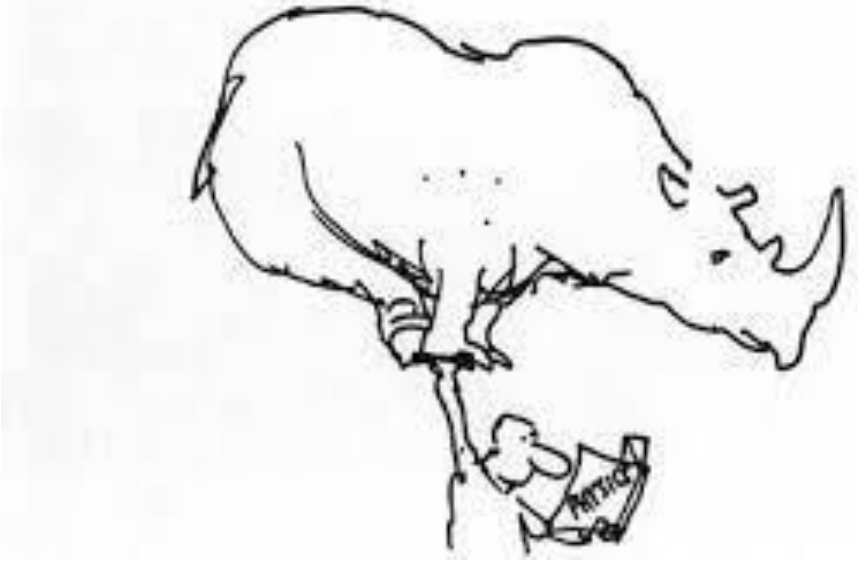
#10 ELIMINATE SLOGANS

#11 METHOD

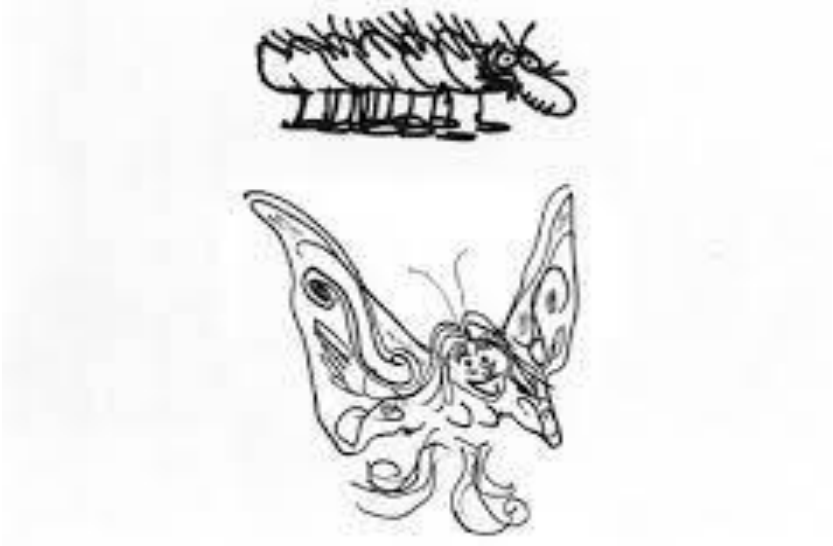


#12 JOY IN WORK

#13 CONTINUING EDUCATION



#14 ACCOMPLISH THE TRANSFORMATION



Cartoon CARTOONS

on

"We can't say 'new and improved' until we come up with a product."

"We found a few barrels of stuff we didn't know we had."

"OK, let's hear it – but this better not be another one of your pie-in-the-sky ideas."

Quality/Total Quality

Hey! These oysters aren't FRESH!
IMPOSSIBLE sir! Our quality management is second to none!..
Might one suggest- if sir doubts the quality of our cuisine, that he use some quality time to go jump in the lake!

"We like your zip-a-dee. You need to work on your dooh-dah."

UNORGANIZED V/S ORGANIZED

"In the interest of efficiency, I've turned on the hot air."

"I know you don't give a shit, Mister Popadopoulos, but you're supposed to sit at the other table."

...COMPANIES MUST LEARN TO EMBRACE CHANGE.
UH-OH. IT'S ANOTHER MANAGE-MENT FAD.
WILL IT PASS QUICKLY OR WILL IT LINGER LIKE THE STENCH OF A DEAD WOODCHUCK UNDER THE PORCH?
I THINK WE SHOULD DO A "CHANGE" NEWSLETTER.
WOODCHUCK

ELBONIA
I'VE BEEN SENT TO TEACH YOU "TOTAL QUALITY MANAGE-MENT."
IN THE OLD DAYS, QUALITY WAS JUST AN EMPTY WORD MEANING "GOOD."
QUALITY EQUALS GOOD (1950)
EVENTUALLY IT EVOLVED INTO A COMPLICATED METHOD FOR TRANS-FERRING YOUR MONEY TO BUSINESS CONSULTANTS.

WE'RE HIRING A DIRECTOR OF CHANGE MANAGEMENT TO HELP EMPLOYEES EMBRACE STRATEGIC CHANGES.
OR WE COULD COME UP WITH STRATEGIES THAT MAKE SENSE. THEN EMPLOYEES WOULD EMBRACE CHANGE.
THAT SOUNDS HARDER.
Dilbert.com DilbertCartoonist@gmail.com

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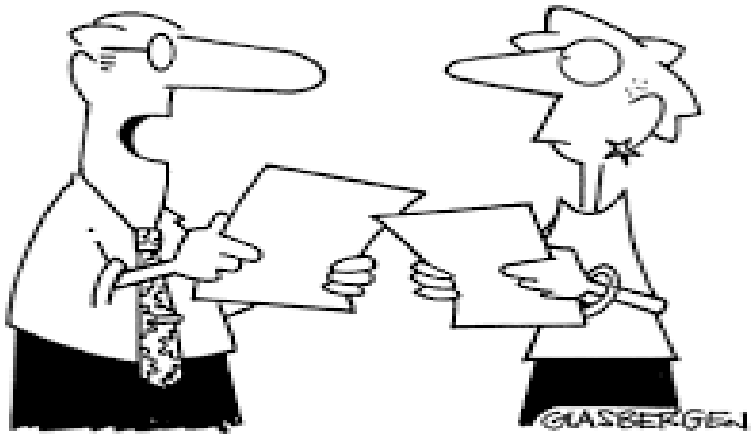


"My performance review says I have trouble accepting responsibility. Is that MY fault?!"

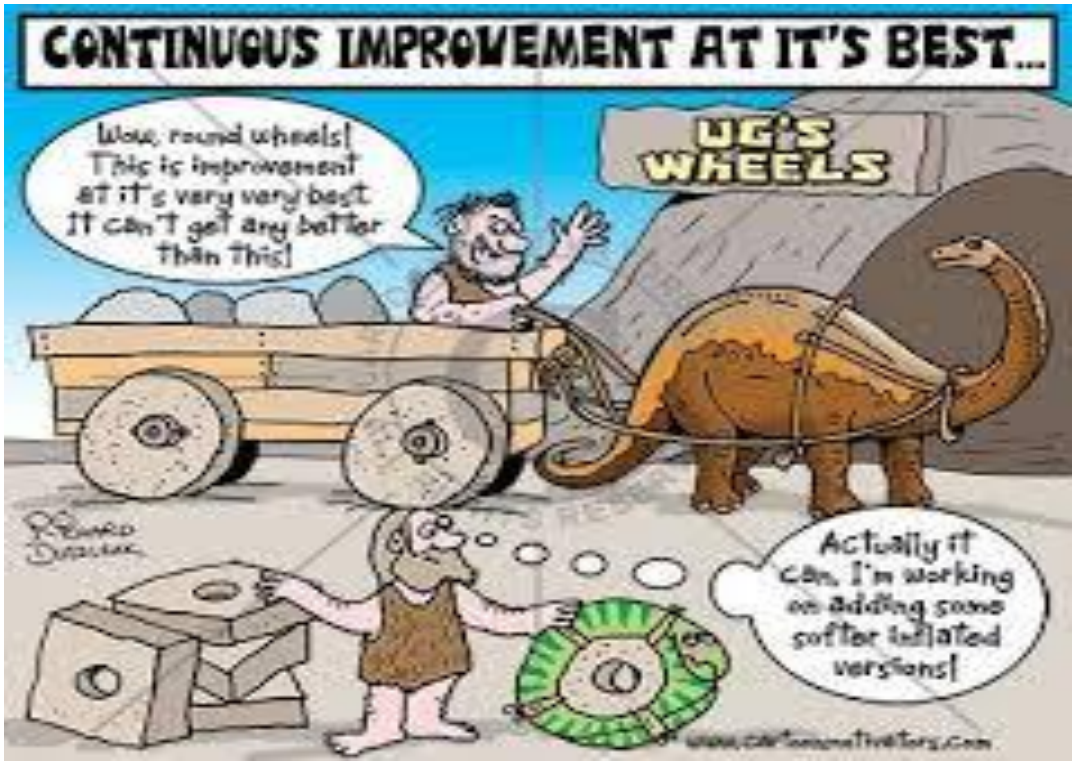
"WHEN YOU SIT DOWN, YOU GET A SHOCK. OPEN A BOOK, YOU GET A SHOCK. WRITE SOMETHING, ANOTHER SHOCK. IT'S A TYPICAL PSYCHOLOGY CLASS."

IF YOU CAN'T SAY SOMETHING NICE ABOUT A PERSON, THEN DON'T SAY ANYTHING AT ALL. IN THAT CASE, I MAY NEVER START TALKING!
© 1997 by Randy Glasbergen
E-mail: randyg@norwich.net
GLASBERGEN

"You have reached Efficiency Consultants. All our agents are busy now. Why aren't you?"

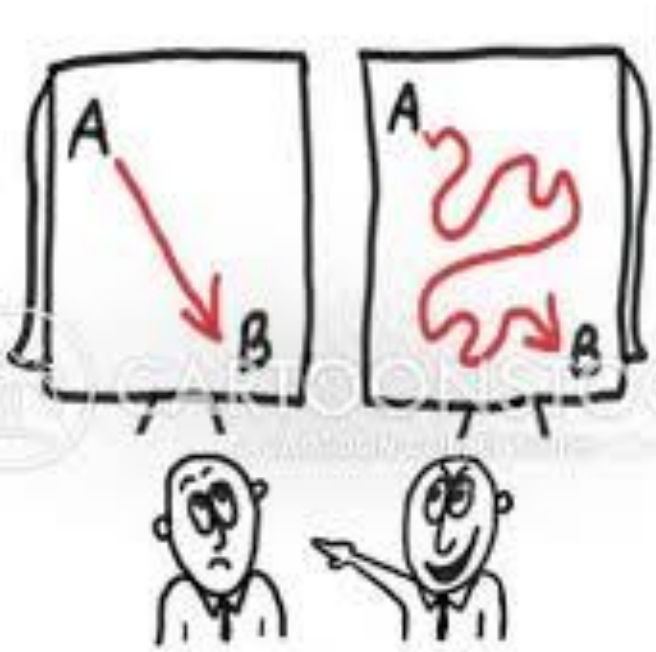
TED, I DON'T KNOW HOW TO SAY THIS.
WE NEED TO LEAN UP THE PROCESS IMPROVEMENT PROCESS SO I HAVE TO SMARTSIZE ONE RESOURCE.
WOW. USUALLY IT'S JUST A FIGURE OF SPEECH WHEN PEOPLE SAY, "I DON'T KNOW HOW TO SAY THIS."
www.dilbert.com scottadams@aol.com

"Does our improvement really need to be so continuous?"

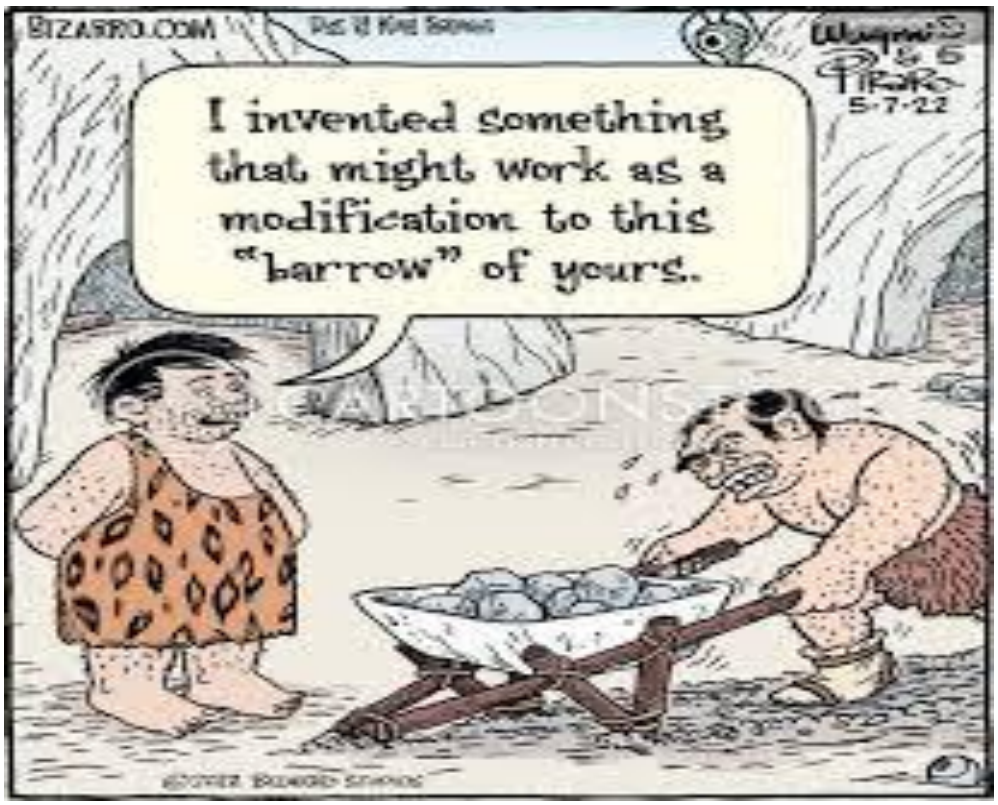

CONTINUOUS IMPROVEMENT AT IT'S BEST...
Wow, round wheels! This is improvement at it's very very best. It can't get any better than this!
UG'S WHEELS
Actually it can. I'm working on adding some softer inflated versions!

"It was right here where we put the entire department on steroids."

I CUT THE QUALITY CONTROL BUDGET TO FREE UP FUNDS TO INCREASE OUR SALES FORCE.
SO YOUR STRATEGY IS TO SELL A LARGER VOLUME OF DEFECTIVE PRODUCTS?
THE QUALITY WILL BE FINE. THE TESTS WILL JUST TAKE LONGER.
SO... IT'S AN ANTIQUE THING?
www.dilbert.com



- Your solution is far too simple for a real expert...



I think the leadership seminar MIGHT be in the conference room. Would anyone like to follow me?

COMMITTED TO CONTINUOUS IMPROVEMENT!
YES, IT'S BRILLIANT, BUT THE NEXT ONE WILL BE EVEN BETTER!

Team Work

EXPIRED
Always Check
Expiry Date & Material Quality
Before Using.

CASE Studies

[Resource: https://deming.org/deming-today/]

[01] Aviation Program at Southern Utah University

How a university is using the Deming approach
to save jobs, transform airplane maintenance training,
and change legislation to make flying safer.

A DEMING "CINDERELLA STORY"

When we met Mike Mower, Executive Director of the Aviation Program at Southern Utah University, the program was on the brink of collapse. They were contracting with a private, for-profit company to help them with training aviation students. But it wasn't working, and they couldn't figure out why or what to do. As Mower describes in a recent Deming Institute Podcast, what happened next is "probably the biggest Cinderella story our university has ever seen."

SAVING 130 JOBS!

Through a partnership with SUU's QUIL (the W. Edwards Deming Quality, Innovation & Leadership Incubator) and with guidance from Dr. Ravi Roy, SUU Professor and Senior Research Fellow at The Deming Institute, SUU Aviation began to integrate the Deming Leadership System. Within two years, they had saved the Aviation Program – and 130 jobs!

MAKING FLYING SAFER

But that was just the beginning. Aviation programs had long struggled to train students under antiquated FAA maintenance training regulations. "You can imagine how much maintenance has changed in the last 60 years, but the way people are trained hadn't changed at all," says Mower. Frustrated with an unresponsive FAA, SUU Aviation took it upon themselves to revise the rules, using a Deming approach, and then lobby Congress to pass a bill that was signed into law in 2018. SUU Aviation will be the first program in the nation to teach under the new rules.

AND SPAWNING A GLOBAL MOVEMENT

"We need Deming more than ever," says Mower, and SUU Aviation is "poised to change the world…Globally, as we work with our partners in China, Taiwan, and Korea, we will spread the story of…what happens when you eliminate fear, once you get rid of barriers and allow people to be creative in thought and action."

[02] New York Label & Box (NYLB)

Proud to be Labelled a Deming-Inspired Company

Ask Steven Haedrich about his goal in life, and he'll tell you straight away, "I'm on a mission to create a company so successful, it will once again show the power of Deming's methods." That might seem like a tall order. However, when you understand what makes Steven tick, and recognize what his company, New York Label & Box has accomplished by applying the teachings and practices of W. Edwards Deming, you welcome his boldness and can't help but cheer him on.

New York Label & Box (NYLB) has been in continuous operation for 136 years. Founded by Herman Hug in Manhattan in 1878, the company was purchased by Steven's grandfather in 1930. Since then it's been family run, with Steven and his father buying out the other family interests in 1996. Today, the company is located in Islandia, NY, on Long Island and South Hackensack, NJ, and specializes in innovative labels and packaging, such as resealable labels, UV inks and expandable carton packaging. By all accounts the business is thriving. Worker turnover is virtually zero. The management team has been intact for over 20 years. Its customer base is solid and profitable. But not too long ago, New York Label & Box was in a very different state of affairs. What Steven characterizes as nothing less than a crisis.

A Wake-Up Call to Quality

Even under the best conditions, running a small company is never easy. There's always a big list of challenges; meeting payroll, paying suppliers, servicing customers, trying to invest in new equipment, hiring and training, tackling new and existing problems. But nothing quite compares to the Specter of losing your largest customer. This is exactly the situation Steven found himself in shortly after taking over the day-to-day operations in 1996. As he describes it, "My largest customer at the time, Hue Hosiery sent a 30-page form letter to all its vendors that in a nutshell said, "Our quality is paramount upon our supplier's quality and we are asking you to improve your quality." With that edict, I essentially began to read everything I could about quality."

In his pursuit to learn more about quality, Steven discovered, "In every book I read, or every turn I made, I saw Deming's name. And one of his books kept coming up, Out of The Crisis." To say this seminal work of Deming spoke to Steven is an understatement. "When I saw the title, it hit me hard, because crisis is what I felt I was in most of the time." And according to Steven, "You could have inserted New York Label as the manufacturing example in the book. The problems that Deming talked about and the old way of thinking fit us to a tee."

Although Deming's theories and practices on improving quality resonated with Steven, and he was certain he had "found the right guy, and the right philosophy", he still needed to figure out how he was going to implement this "new way of thinking" at New York Label. His solution was to hire Rafael Aguayo, the author of the book, Dr. Deming: The American Who Taught the Japanese About Quality, as a full-time consultant to New York Label. Steven had come across Rafael's piece on Deming while doing research on the topic of quality, and at the time, Rafael just happened to be living nearby in Brooklyn.

Gathering The Low Hanging Fruit

Starting in 1997, and over the course of the next two years, with Rafael's guidance and Steven's leadership, the company made significant strides in implementing many of Deming's key tenants, particularly those expressed in his illuminating declaration, *The 14 Points For The Transformation Of Management*. At New York Label, this meant removing sales quotas and performance reviews, eradicating "command and control" management practices, promoting teamwork and collaboration, practicing systems thinking, and tying sales and growth directly to improving quality. With a cultural shift around quality firmly in place, and the company making what

appeared to be steady improvements from the shop floor to customer service, Steven believed he and his management team could carry on without Rafael's involvement.

Looking back at this decision, Steven recalls, "We were able to integrate Deming's philosophy into the culture of the company, and had a pretty good grasp of certain concepts, like common cause and special cause variations. But I now realize this was really just the low hanging fruit." Indeed, after a number of years of going it alone, Steven sensed his efforts around implementing Deming and improving quality at New York Label had plateaued. This was less out of complacency and more out of a lack of a greater understanding of Deming's practices. Steven explains, "We weren't able to see the importance of all the components and their relationship within the system, including outside suppliers and customers."

Carpe Diem

Fast forward to 2006. The marketplace was beginning to cool down putting more pressure on big and small businesses alike. Many companies turned to standard quick fixes to improve the bottom line, such as laying-off workers, cutting back services, squeezing more dollars out of suppliers, buying up smaller companies and exercising creative accounting practices. But not New York Label. Instead, Steven redoubled his efforts around Deming. He created a new position in the company, Head of Quality, and selected Anthony Masotti to take on the role. Anthony was a long-time employee of New York Label with a deep appreciation for Deming's theories and teachings. One of the first steps Anthony took was to attend a two and a half-day seminar developed by The W. Edwards Deming Institute entitled, *27 Reasons Why Businesses Fail*. Patterned on Deming's famous Four-Day Seminar, this compressed format was led by Kelly Allan, a consultant with years of experience helping companies successfully implement Deming's management philosophy. Steven describes the outcome of Anthony's experience, "He returned from the seminar energized. It confirmed that Deming was the right way to go. But more importantly, we had a lot more to learn and a lot more work to do with Deming."

An initial assessment of New York Label found they had a solid understanding of the Psychology component from Deming's System of Profound Knowledge, and had built a really strong corporate culture because of that. They also understood Variation and had a good grasp of operational definitions, but needed work around Deming's Appreciation For A System and Theory of Knowledge, including running more effective PDSAs. As Kelly's involvement with the company enters its second decade, their understanding and practice of Deming's management philosophy has significantly deepened, leading to much of the success the company has experienced. When you talk with Steven about New York Label, there is passion in his voice. The conversation moves at a steady clip. Nothing is sugar coated or circumspect. He is clear about his beliefs, and open and honest about his feelings. What emerges is the picture of a thoughtful, fair-minded business owner with a thirst for quality and continual improvement. But listening to him tell the story of how his company has changed for the better because of Deming, you get a sense that perhaps Steven's best quality as a leader is his courage to take action in a timely fashion. Which helps explain why shortly after Anthony returned from the two and a half-day seminar, Steven engaged Kelly Allan as a consultant to New York Label.

Quality Upstream and Downstream

The NY Label team set up PDSAs (Plan-Do-Study-Act) that focused on optimizing manufacturing processes at New York Label to improve quality through greater production efficiency and effectiveness. They learned that "Effectiveness means doing the right things. Efficiency means doing the right things in the right way." With guidance, Steven and his management team used a "Deming lens" to examine New York Label's roster of clients. What they found was waste and frustration within their own organization in regard to many of those clients.

Also known as the Deming Cycle or the Shewhart Cycle for Learning and Improvement, PDSA is a systematic and dynamic process covering theory and application that yields valuable knowledge, not simply data or information. It is a means for achieving a never-ending cycle of valuable learning for the continual improvement of a process or product.

Also known as the Deming Cycle or the Shewhart Cycle for Learning and Improvement, PDSA is a systematic and dynamic process covering theory and application that yields valuable knowledge, not simply data or information. It is a means for achieving a never-ending cycle of valuable learning for the continual improvement of a process or product.

In short, New York Label was spending most of its time trying to service its most difficult and least profitable customers. Steven points out, "We realized we had the wrong customer financial base, and in fact, we had to cut underperforming clients in order to improve quality and raise profitability." This is not an easy decision for any size company, but particularly for a small one where typically the prevailing thinking is any revenue is good revenue. This process of "grooming" helps to build the right customer base as the most profitable and highest performing customers are groomed up, and the others are groomed out. In the case of New York Label, this translated into cutting its customer base in half over the course of a few years.

Steven also learned the process of grooming can be applied to a company's suppliers. With quality now not just top-of-mind at New York Label, but actually baked into their processes, they discovered their largest paper supplier was providing them with substandard materials. This was compromising the quality of New York Label's product for its customers, as well as causing operational inefficiency from having to continually start, stop and repeat production runs. To make matters worse, Steven's effort to get this large supplier to acknowledge quality issues, let alone take the necessary steps to elevate them seemed to be going nowhere. Again, based on the importance of quality to the company's business model, Steven made the bold decision to part ways with his largest paper supplier. He sums it up this way, "Essentially, our business model is founded on Deming's chain reaction, which says, when you improve quality, costs go down, because of less rework and more efficiencies. When you're costs go down, you can pass those savings on to the customer. The customer gives you more work. You capture more market share. You're able to hire and keep the best people. You have the highest quality at the lowest cost and your customers love you.

You can't walk 20-feet in New York Label & Box without seeing that the entire workforce embraces the Deming Philosophy and walks the talk.

Steven and New York Label have done a lot of things right with Deming over the past twenty years. They have advanced their effectiveness, efficiency and quality rating. The culture they created, including driving out fear and instilling pride in their work; what Deming called "joy of work", are all big advantages for the company. However, the biggest advantage New York Label has realized through implementing Deming has been the company's ability to focus on innovation. That innovation equates to a strong differentiator and competitive advantage in the marketplace. As Kelly points out, "The printing business is a tough market to be in. But New York Label not only was able to weather the last recession, but actually grew and prospered during it."

A Few Words of Advice

While Steven is upbeat about the prospects for New York Label, he is less so about what he sees in American businesses today. He is quick to point out the difficulties some of the biggest automakers are currently facing, including large-scale recalls, multi-million-dollar class-action lawsuits and stepped-up government involvement. Questioning the aim and purpose of these companies, he wonders, "Is quality important to the leaders of the auto industry today? If so, how come I never hear them mention it as a factor for the problems their companies' are having?" He believes a lack of quality is leading them and our nation down a slippery slope that may in fact be the harbinger of another economic downturn.

Steven also is troubled by the lack of awareness of Deming in American business, and how poorly those business leaders that know of him understand Deming. "They say to me, I never hear of Deming. And if I've never heard of him, how can he be worth anything? Or, why should I continuously strive for quality improvement? I'm making money. My business is successful!" However, for those business leaders who are willing to listen to what Steven has to say about Deming, particularly those who are thinking about implementing his management philosophy, he offers 6-points of advice.

1. Have a 5-year plan, with constancy of purpose, and a vision to get the entire company to understanding that everyone is part of the transformation
2. Hire an outside consultant that has a complete understanding of Deming
3. Hire or appoint someone in the company to be a go-to-person, spearheading the improvement process, and training the management team (workers accept and implement Deming quickly because you are empowering them, taking away fear, and giving them the tools they need.)

4. Read everything you can get your hands on to have a better understanding of Deming, while working with the outside consultant and internal champion
5. Improve quality, understand systems thinking and optimize the system
6. Make sure you have clients that are bragging about your products and services (the ultimate measurement of success)

If you would like to discuss these 6-points of advice with Steven, or learn more from him about how the theories and teachings of W. Edwards Deming helped him transform New York Label & Box into a thriving small business, he would be more than happy to speak with you. Of course, that's exactly what you would expect from someone who is on a mission "to once again show the power of Deming's methods."

[03] A Text Book Case of Applying Deming to K-12 Education

"We will never transform our prevailing
system of management without transforming
the prevailing system of education
- they are the same system."

<<< W. Edwards Deming

The growth of Leander Independent School District (LISD) – which is located 25 miles northwest of Austin, Texas – from just six campuses and 5,000 students in 1991 to serving 33,000 students through 37 campuses today is an inspiring story about seeking quality, finding guidance, and ultimately transforming a K-12 educational system into one of the best in the country today. For over a quarter of a century, Monta Akin, Assistant Superintendent for Instructional Services, has been leading LISD in applying many of Dr. Deming's theories and teachings within a K-12 environment. When asked to identify the catalyst for changing an age-old system of education and embarking on a journey of transformation that continues today, Akin is clear and concise: "It all started with the feeling that we could do better."

Seeking Quality and Finding Guidance

The desire to do better and improve quality is common to all leaders who have embraced and applied Dr. Deming's theories and teachings to their organization. Less common is how they first discover Dr. Deming. In Akin's case, it was serendipitous. As she explains it, "I was up one night flipping through TV channels when I caught the tail end of a documentary called Quality…Or Else. I started to get goose bumps from what I was hearing. It was about quality and improvement – all the things that we were talking about and wanted for our school. And they kept referring to ideas associated with a man named Deming. I knew I had to find out more."

Monta Akin, Assistant Superintendent for Instructional Services (LISD)

Anyone who has spent time with Akin knows she revs at a higher rpm than most people. So it's not surprising that in just a few short weeks after her television epiphany, she had gathered and began to read any book she could find about Dr. Deming, including one of his seminal books, Out of the Crisis.

Akin admits that they struggled with the text and interpreting some of Dr. Deming's ideas for K-12 education (and was grateful when The New Economics was published in 1993).

But they knew they were on to something. So when they heard about a seminar in Dallas conducted by David P. Langford*, founder of Langford International, Inc., covering processes for continual quality improvement in K-12 education based on Dr. Deming's work, Akin jumped at the opportunity to attend with nine colleagues. (Langford was featured in the PBS documentary Quality...Or Else.) Indeed, for Akin and her colleagues the 1991 seminar in Dallas was nothing less than game changing, and the relationship they established between Langford International, Inc. and LISD continues to this day.

Akin recounts with pride, "We came back from Dallas charged with excitement, asking ourselves, what did our system look like? And what could we do to improve it? We worked with the Plan, Do, Study, Act Cycle and identified 12 improvements we wanted to make. We also drew up our own system flowchart, and began to see different types of relationships, including new opportunities to work upstream with parents and younger children, and downstream with partners like local trade schools and colleges."

Over the years, and due in large part to Akin's leadership, LISD has put into practice many of Dr. Deming's theories and teachings. They have developed a true appreciation for systems thinking. They have utilized the learning and knowledge that can be gained from the ***PDSA Cycle***. They have created control charts and analysis of common and special case variance within the LISD system. And they have cultivated important humanistic, motivational, and psychological factors that Dr. Deming addressed in his System of Profound Knowledge.

Overcoming Obstacles and Driving Out Fear

Introducing, establishing, and utilizing Dr. Deming's theories and teachings as a guiding force within LISD, as is the case with most organizations that seek to find a new way through Deming, has not always been a smooth and seamless process. For Akin, one obstacle in particular stands out – teacher evaluations.

They took their request to remove teacher evaluations from LISD to the Texas State Commissioner of Schools, and were granted a waiver, but only under certain conditions. They had to agree to develop a new process to regularly evaluate their staff. With the help of an improvement team composed of teachers and central office staff, they set out to unbundle the teacher evaluation system into two parts: a revised evaluation system focused on issues related to rehiring and a teacher portfolio system focused on ongoing learning and self-improvement. These requirements would put a smile on the face of anyone who's familiar with Dr. Deming's **14 Points for the Transformation of Management**, since points 6 and 13 are specifically concerned with an organization making available for its staff ongoing training and self-improvement programs.

The annual teacher evaluation is ubiquitous in K-12 education in America today. Like merit rating and quotas, it is the kind of managerial practice that Dr. Deming deplored. His famous **Red Bead Experiment** dramatically illustrated the fallacy of rating people by ranking them in order of performance. Performance evaluations of workers can also be dehumanizing, impede cooperation, and perhaps most importantly shift management's attention away from focusing on the system, which is where important information resides and meaningful improvements can be made.

Akin recalls a pivotal meeting with her colleagues not long after their work started to gain traction in the classroom, as well as the attention of school administrators and officials outside LISD. "We discussed at great length point number 8 of Deming's **14 Points for Management** – 'Drive out fear, so that everyone may work effectively for the company.' We asked teachers what was the greatest source of fear in the system for them – and they immediately came to consensus that the biggest fear for teachers is the annual performance evaluation. We concluded that, if at all possible, fear had to be removed from our new system."

Where is Deming Today in LISD?

There's no doubt that Dr. Deming's **System of Profound Knowledge®** (SoPK) has had a profound and lasting effect on the LISD educational system and instructional process. However, as Akin points out, "It's not always easy to see

Deming in the classroom. When teachers visit our classrooms, they see chairs, desks, computers, and blackboards. They shake their heads and wonder, what's so different? It's not until you have a conversation with students and staff that those differences emerge." It is easier to see Dr. Deming's theories and teachings in how LISD articulates its K-12 educational system and instructional process today, particularly in three key LISD concepts – the Leander Way, the LISD Graduate Profile, and the Leander Learning Model.

The Leander Way can be viewed as a foundational concept that is comprised of three interrelated components – build, think and create. Systems and continual improvement are explicitly referenced in The Leander Way and map directly to Dr. Deming's **SoPK**. Other important aspects of The Leander Way, such as relationships, excellence, passion for working/learning, trust and ethical behavior, though not exactly the words used by Dr. Deming, are also found in SOPK.

The LISD Graduate Profile is a list of skills and abilities that each LISD student will know and be able to demonstrate upon graduation. It is referred to as "…the singular purpose of our existence." In this respect, the Graduate Profile is an articulation of "the aim" of the LISD educational system. For Dr. Deming, any successful system must have a stated aim, which all the constituents, along with all the connections and interactions of the system work together to accomplish. Succinctly, Superintendent Bret Champion articulates this aim: Students will exit our system with the same passion for learning they had when they entered our system, having achieved high academics and strong character, without economics determining their success.

The Leander Learning Model is a diagram of the processes needed to reach that aim. The Leander Learning Model is comprehensive in nature and complex by design, encompassing the entire set of LISD practices and philosophies, including The Leader Way and Graduate Profile. The Model is represented as concentric circles and quadrants of information, with the student placed at the center of focus. In this respect, the Model is less an actual articulation of SOPK and more a graphical depiction of its conceptual underpinnings of – holistic and non-linear, interconnections and interdependencies, and layered and multifaceted.

[04] Great Plains Coca Cola Bottling Company

Transformation, The Great Plains Way

By the time Chairman Emeritus Bob Browne sold the Oklahoma City–based Great Plains Coca-Cola Bottling Company in late 2011 to its corporate parent, it had become the fifth-largest independent Coca-Cola bottler in North America. Great Plains also had become an excellent example of the kind of business transformation that W. Edwards Deming sought to inspire and support through his theories and teachings. Browne's experience in transforming Great Plains from what he has described as a traditional "command and control" management style to a customer-focused "process control" operating philosophy provides insights into the type of leadership required to realize success in today's complex business environment. Moreover, the ways in which Browne recast and integrated the four key areas of Dr. Deming's System of Profound Knowledge® (SoPK)—Appreciation For A System, Knowledge Of Variation, Theory Of Knowledge and Psychology—to best suit the needs of Great Plains is testament to the power of "Deming Today" in American business.

Browne has written a thorough and engaging book covering his implementation of SoPK as part of the core culture of the company, The Great Plains Way: Profound Knowledge of the Real Thing. What follows are highlights of his journey in transforming Great Plains, and a window into his illuminating book.

Growing Pains and Growing Awareness for Change

Browne's grandfather purchased what is now Great Plains Coca-Cola Bottling Company in 1922. Fifty-eight years later he became Chairman and CEO of Great Plains, making him one of only three people to head the company. In

the late 1980s, the company acquired several neighboring Coca-Cola territories, significantly expanding its footprint within the region. To realize greater "economies of scale," as well as address a growing variety of new beverage types, Browne and his management team attempted to eliminate "redundant" facilities and consolidated production to one manufacturing plant.

However, what seemed like a "logical" consolidation strategy turned out to be counterproductive. The remaining production facility was stressed, and the distribution system became clogged. Out-of-stock and out-of-date reports jumped. Profits were reduced, wastage soared, and customers became increasingly irritated with Great Plains' service. In short, the company was headed in the wrong direction.

As Browne recalls, "I needed to do something dramatic, and that thing wasn't to be found in the traditional command-and-control playbook that I had learned as an officer in the Navy, from business school at Columbia University or from my years as an analyst at Arthur Andersen." Against the counsel of most of the management team, Browne returned to a system of two separate but now integrated production facilities serving the entire territory in a more holistic way. The immediate problems were resolved, but Browne still had an unsettling feeling that his company needed to significantly change its approach.

Systems Thinking as a Starting Point

During the tumultuous events of the acquisition period, Browne read Eliyahu Goldratt's book The Goal: A Process of Ongoing Improvement and concluded that a holistic system-based approach might resolve the issues then facing the company. Browne remembers, "From 1990 to 1992, we initiated what in hindsight could be called a great deal of systems thinking. Many just-in-time processes were implemented. Systems flow charts were everywhere. The most symbolic evolved into what became known as the Kaizen Model."

Although islands of excellence did appear in several functional areas as a result of the systems changes, Browne realized that the existing command-and-control business model was putting undue stress on the staff. Furthermore, acceptance of the new systems was limited, and not well understood, even at the senior management level. Departmental silos remained intact, and more often than not, these islands of excellence were the creators of waste. As a result, there were still no material synergies resulting from the acquisitions.

In a serendipitous way, during this same period Browne began reading alternative management theories and non-Western traditions and philosophy, including Taoism. He first became aware of Dr. Deming at a Duke University seminar. As he began to further examine Dr. Deming's theories and teachings, he found in them support of the new direction he was developing for his company.

While Browne believed in the power of the theories and teachings of Dr. Deming, he also understood the challenges of explaining and implementing them in the organization. Browne has given a lot of thought as to why this might be, and has come up with some compelling theories. He believes that the traditional Western left-brained mind-set and the consequential linear cause-and-effect approach to thinking might be what is hampering the ability of so many leaders in business to understand what Dr. Deming was trying to say. On the other hand, the right-brained mind-set and more cyclical approaches to thinking associated with Asian cultures could be what have enabled their societies to more easily grasp Dr. Deming's theories and teachings. Indeed, Dr. Deming has been credited with inspiring and guiding the spectacular rise of Japanese industry after World War II.

From Browne's point of view, "The yin-yang of Eastern cultures seemed to represent the dynamics of a system that talks to itself, turning synchronously just like Dr. Deming's Cycle of Plan, Do, Study, Act." He argues, "Most westerners interpret this cycle to be something like the budgeting cycle, where your boss typically sets goals and later checks to see how you are doing." For Browne, the Deming Cycle might be better interpreted as a feedback loop in a rapidly repeating cycle, measuring how the process is running rather than whether the process is accomplishing some goal. In his estimation, "That is what Deming's Statistical Process Control (SPC) run charts were measuring."

Browne also sees Dr. Deming's Fourteen Points for Management (particularly points 3, 4, 10, 11 and 12) as taking aim at the jugular of a number of traditional left-brained Western paradigms in business, such as the practice of awarding business on the basis of price tag, management by objective and annual merit rating of employees. Browne doesn't sugarcoat his feelings on this subject: "For most of us, our old paradigms make perfect sense, and Deming's Fourteen Points sound like gibberish. Nevertheless, something is terribly wrong with our Western ways and our traditional American capitalistic model as we know it."

Moreover, Browne believes the culturally left-brained Western management style creates a blind spot to fully appreciating the power of Dr. Deming's

SoPK and the other nine points, which include the need to create constancy of purpose, drive out fear, and institute a vigorous program of education and self-improvement.

Blue Boxes and Green Arrows

Many of the company's system flow charts, including the Kaizen Model, depicted blue boxes connected by green arrows. Browne recalls, "Everyone 'seemed' to understand systems thinking and the need for precise systems." However, he realized most of the people in his company were missing the holistic and interdependent nature of the model. Their "western" focus was solely on the blue boxes.

The way Browne sees it, "Western bosses love their blue boxes and managing their people." He further explains, "In a traditional command-and-control structure, the bosses manage the people and get results by increasing the productivity and output of their individual blue boxes, but as a result, silos develop and there is a great deal of emphasis on management by objectives and merit pay—two things Deming said should be abolished."

Browne's solution was to shift focus to the importance of the green arrows of the company's system flow charts. According to Browne, the green arrows are not simply there to point out the direction of the flow. They are about caring relationships, or what Deming called "Understanding Psychology." Every blue box is full of internal customers hoping for satisfaction from their suppliers on the other end of the green arrows. The implication is that people don't work for their boss; instead, they work for some co-worker at the tip end of a green arrow in some other boss's blue box.

An Articulation of Great Importance for Great Plains

Browne knew he needed to find a way to communicate the subtlety and substance of the green arrows to the predominately left-brained Western mind-set throughout the ranks of Great Plains. However, he also realized these concepts regarding holistic, nonlinear and caring relationships might seem strange or esoteric to the Great Plains workforce. He found the articulation he was looking for in the title of a Harvard Business Review article he came across at the time describing a systems approach to the order management cycle: "Staple Yourself to an Order." Browne recalls, "I noticed that 'Staple Yourself to an Order' could be abbreviated to the acronym SYSTAO, or SYS-TAO." The phrase and acronym turned out to serve multiple purposes for Browne in his quest to transform the company.

The acronym embodies and expresses the major influences of Browne's thinking, and helped him to crystallize the rudimentary idea of a new

business model for Great Plains: a traditional left-brained, Western, linear system thinking model that also embraces the more right-brained Eastern cultures' appreciation of collaborative relationships and cyclical principles, with a goal of continual improvement.

Metaphorically, the phrase "staple yourself to an order" helped everyone in the company become more aware of all the steps in Great Plains' business process in a more holistic fashion. This included a greater awareness of both "quality consciousness" and the "caring relationships" all along the chain of customers. In fact, the caring relationships extend from consumers and retailers on one end, through internal departments of the company, and back upstream to external suppliers on the other end. This conceptual framework became the foundation for the company's mission statement: "To become better and make it easier to quench the thirst of our customer's customers."

In addition, SYS-TAO provided a better way of thinking about the nature and relationship of the blue boxes and green arrows. The blue boxes became the SYS, representing the functional components of the system. The green arrows became the TAO, representing the customer focus, the quality consciousness and the relationships between the blue boxes. Interpreted in this fashion, the green arrows pointed the way to shifting the focus of the company from accomplishing supplier goals to solving customer problems, and from managing people for objectives to managing the process for improvement.

The Transformation is Everybody's Job

Bob Browne would be the first to tell you that creating real and lasting change in an organization is never easy. It takes leadership at the top, as well as ownership by the associates. This might explain why the last of Deming's Fourteen Points states, "The transformation is everybody's job." With this in mind, Browne formalized in writing SYS-TAO as the policy and process to be shared with and practiced by the entire workforce, as a source for constancy of purpose, pride for the workforce and joy in the workplace.

In June 1995, Browne instituted the SYS-TAO education program of compulsory workshops, built around a tangible explication of the Great Plains philosophy and manifested in the day-to-day activities of the company. In fact, every Tuesday, for 12 years, Browne personally led groups of 20 Great Plains associates representing all levels and functional areas in collaborative discussion sessions where associates "stapled themselves to an order" to explore, examine and discuss the Great Plains Way.

Today, Browne continues to think about and share his experience of transforming Great Plains through lectures and consultative work. This includes presenting other innovative ideas and practices that he initiated and implemented to support the transformation and success of Great Plains. Many of them, such as Throughput Accounting, The Smart Order, and The Time Paradigm, are either rooted in spirit or a direct outgrowth of **SoPK**.

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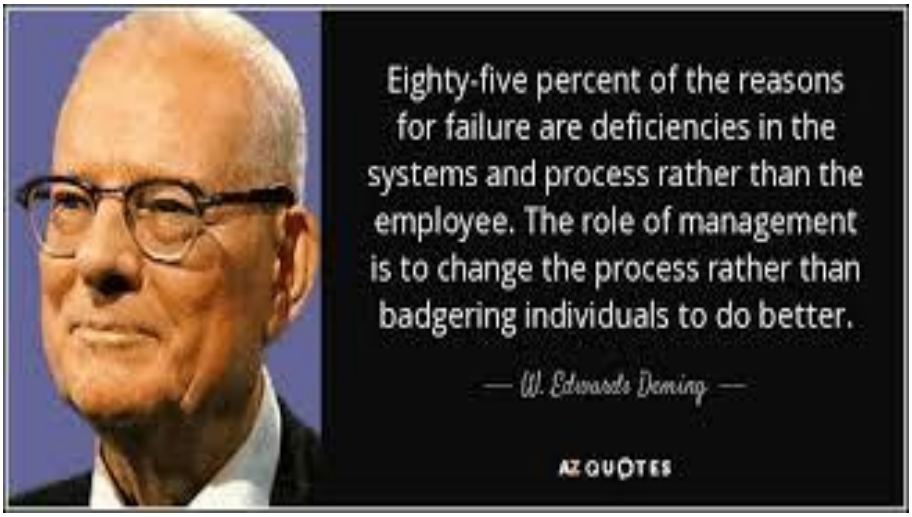
01 CREATE PURPOSE FOR IMPROVEMENT
02 ADOPT THE NEW PHILOSOPHY
03 CEASE DEPENDENCE ON INSPECTION TO ACHIEVE QUALITY
04 WORK WITH ONE SUPPLIER TO REDUCE COST
05 CONTINUOUS IMPROVEMENT
06 ON-THE-JOB TRAINING
07 LEADERSHIP
08 DRIVE OUT FEAR
09 BREAK DOWN SILOS
10 NO SLOGANS
11 NO QUOTAS OR NUMERICAL GOALS
12 REMOVE ANNUAL RATINGS OR MERIT SYSTEM
13 INSTITUTE EDUCATION AND SELF-IMPROVEMENT PROGRAMS
14 INVOLVE ALL WORKERS IN THE TRANSFORMATION


Eighty-five percent of the reasons for failure are deficiencies in the systems and process rather than the employee. The role of management is to change the process rather than badgering individuals to do better.
— W. Edwards Deming —
AZ QUOTES

HERO of Quality

Dr WEdwards Deming

Author
Elizabeth Millar
October 12, 2017

[Source: https://www.qad.com/blog/2017/10/dr-w-edwards-deming-hero-quality]

Through many of our articles we focus on the future of manufacturing, such as upcoming trends and keeping up with new technology, but how did we get here? It's important to take some time to think about the history of manufacturing and those visionaries whose contributions are still appreciated and felt today — whether you know about them or not. Take Dr. W. Edwards Deming, for example, his contribution to quality is still as important today as it was in the mid-twentieth century.

Deming's Early Life

William Edwards Deming was born in 1900 in Sioux City, Iowa. He spent his early years on his grandfather's farm in Polk City, Iowa before moving to a

farm his father owned in Powell, Wyoming. His parents believed in education, and Deming went on to receive a BS in electrical engineering from the University of Wyoming in Laramie, a Masters in mathematics and physics from the University of Colorado and a Ph.D. in mathematics and physics from Yale University.

An Interest in Quality Emerges

By the 1930s, Deming became intrigued by the idea of using statistics to improve quality control. His focus was on systematically collecting records of defects and then investigating and correcting root causes to improve production and eliminate future defects.

Deming was receiving international acclaim for his work by the 1950s. In 1950, a group of Japanese businessmen invited him to come to Japan to teach them about his methodology, and as a result, Japanese manufacturing became world-renowned for its high-quality output. Because of the consistent quality of production output, Japan began a rise to manufacturing excellence and to dominate the automotive industry, among others.

A Philosophy of Quality

Dr. W. Edwards Deming's outlook on quality was simple but radical. He asserted that organizations that focused on improving quality would automatically reduce costs while those that focused on reducing cost would automatically reduce quality and actually increase costs as a result. He outlined his ideas simply in his theory of management, now known as *The Deming Theory of Profound Knowledge*.

A Complete Management Philosophy in 14 Points

The 14 key points of his philosophy are evidence of Deming's thought leadership. Each of these points is covered in greater detail in his writings, particularly in his book *Out of the Crisis*. It's interesting to

note that some of his points are now part of generally-accepted management theory.

The 14 Point Theory of Profound Knowledge

1. Management must create constancy of purpose toward improvement of product and service, with the aim to become competitive and to stay in business, and to provide jobs.
2. Adopt the new philosophy. We are in a new economic age. Western management must awaken to the challenge, must learn their responsibilities, and take on leadership for change.
3. Cease dependence on inspection to achieve quality. Eliminate the need for inspection on a mass basis by building quality into the product in the first place.
4. End the practice of awarding business on the basis of price. Instead, minimize total cost. Move toward a single supplier for any one item, on a long-term relationship of loyalty and trust.
5. Improve constantly and forever the system of production and service, to improve quality and productivity, and thus constantly decrease costs.
6. Institute training on the job.
7. Institute leadership. The aim of supervision should be to help people and machines and gadgets to do a better job. Supervision of management is in need of an overhaul, as well as supervision of production workers.
8. Drive out fear, so that everyone may work effectively for the company.
9. Break down barriers between departments. People in research, design, sales and production must work as a team, to foresee problems of production and in use that may be encountered with the product or service.
10. Eliminate slogans, exhortations and targets for the workforce asking for zero defects and new levels of productivity. Such exhortations only create adversarial relationships, as the bulk of the causes of low quality and low productivity belong to the system and thus lie beyond the power of the workforce.
11. Remove barriers that rob the hourly worker of his right to pride of workmanship. The responsibility of supervisors must be changed from sheer numbers to quality.
12. Remove barriers that rob people in management and in engineering of their right to pride of workmanship. This means, among other things, abolishment of the annual or merit rating and of management by objective.
13. Institute a vigorous program of education and self-improvement.
14. Put everybody in the company to work to accomplish the transformation. The transformation is everybody's job.

Leadership is The Key

It's interesting to note that many of Deming's points were considered radical at the time of publication but have now become part of the generally-accepted management playbook.

One of the most important themes running through the philosophy is that management must become leaders who guide and inspire the team to success rather than simply measuring results and place blame for failure. Management's job is to provide leadership.

Given the tactics in use at many companies at the time, this was a sea change in management philosophy. It's interesting to follow Deming's educational and career path to learn how this insight evolved.

Establishment of The Deming Prize

The Japanese Union of Scientists and Engineers (JUSE) established the Deming Prize in 1951 to honor Deming for his insights. To this day, winning the Deming Prize is a great achievement that marks a company as having the highest possible commitment to quality. The instruction booklet for applying for the prize runs to more than 60 pages and applying for the prize requires years of preparation.

Dr. W. Edwards Deming revolutionized the role quality plays in the production process, and for this, we salute him for being a hero of manufacturing.

Total Quality Management

Major Contributors to TQM

Total quality management is a much broader concept than just controlling the quality of the product itself. Total quality management is the coordination of efforts directed at improving customer satisfaction, increasing employee participation, strengthening supplier partnerships, and facilitating an organizational atmosphere of continuous quality improvement. TQM is a way of thinking about organizations and how people should relate and work in them. TQM is not merely a technique, but a philosophy anchored in the belief that long-term success depends on a uniform commitment to quality in all sectors of an organization.

Dr W Edwards Deming

The concept of quality started in Japan when the country began to rebuild after World War II. Amidst the bomb rubble, Japan embraced the ideas of W. Edwards Deming, an American whose methods and theories are credited for Japan's postwar recovery. Ironically enough, Deming's ideas were initially scoffed at in the U.S. As a result, TQM took root in Japan 30 years earlier than in the United States. American companies took interest in Deming's ideas only when they began having trouble competing with the Japanese in the 1980s.

Deming's management system was philosophical, based on continuous improvement toward the perfect ideal. He believed that a commitment to quality requires transforming the entire organization. His philosophy is based on a system known as the Fourteen Points. These points express the actions an organization must take in order to achieve TQM:

1. **Create constancy of purpose for improvement of product and service.** Dr. Deming suggests a radical new definition of a company's role: A better way to make money is to stay in business and provide jobs through innovation, research, constant improvement, and maintenance.
2. **Adopt a new philosophy.** For the new economic age, companies need to change into "learning organizations." Furthermore, we need a new belief in which mistakes and negativism are unacceptable.

3. **Cease dependence on mass inspection.** Eliminate the need for mass inspection by building quality into the product.
4. **End awarding business on price.** Instead, aim at minimum total cost, and move towards single suppliers.
5. **Improve the system of production and service constantly.** Improvement is not a one-time effort. Management is obligated to continually look for ways to reduce waste and improve quality.
6. **Institute training.** Too often, workers learn their jobs from other workers who have never been trained properly.
7. **Institute leadership.** Leading consists of helping people to do a better job and to learn by objective methods.
8. **Drive out fear.** Many employees are afraid to ask questions or to take a position—even when they do not understand what their job is or what is right or wrong. The economic losses from fear are appalling. To assure better quality and productivity, it is necessary that people feel secure.
9. **Break down barriers between departments.** Often, company departments or units compete with each other or have goals that conflict. They do not work as a team; therefore, they cannot solve or foresee problems. Even worse, one department's goal may cause trouble for another.
10. **Eliminate slogans, exhortations, and numerical targets for the workforce.** These never help anybody do a good job. Let workers formulate their own slogans; then they will be committed to the contents.
11. **Eliminate numerical quotas or work standards.** Quotas take into account only numbers, not quality or methods. They are usually a guarantee of inefficiency and high cost.
12. **Remove barriers that prevent workers from taking pride in their workmanship.** Too often, misguided supervisors, faulty equipment, and defective materials stand in the way of good performance. These barriers must be removed.
13. **Institute a vigorous program of education.** Both management and the work force will have to be informed of new knowledge and techniques.
14. **Take action to accomplish the transformation.** It will require a special top management team with a plan of action to carry out the quality mission. Workers cannot do it on their own, nor can managers. A critical mass of people in the company must understand the Fourteen Points.

Deming emphasized surveying customers, consulting production-line workers to help solve quality problems, and teamwork. His system was readily accepted in Japan, where workers and management were used to uniformity and allegiance to institutions. Japanese companies learned to collect data for the statistical monitoring and measuring of customer satisfaction. The goals of these companies were to produce many of the same consumer goods—better and cheaper—that were produced in the U.S. These Japanese companies succeeded, much to the chagrin of companies in the U.S.

Deming saw businesses as bedrock institutions in a society—much like churches and schools. Companies attain long-term success only if business leaders make their employees' contributions matter. If organizations use their employees' ideas, they will improve efficiency and productivity.

Most of the applications of Deming's ideas occurred in the 1950s and 1960s in Japan. In the United States, the desperation needed for executives to finally try a "radical" plan such as Deming's came from economic rather than wartime defeats. Most notably, in the 1980s, Japanese car manufacturers pushed their market share toward 25 percent

sending fear throughout Detroit. The Ford Motor Co. called on Deming after NBC featured his successes in a documentary, "If Japan Can, Why Can't We?" Deming took Ford's invitation as notice that his home country was finally ready for his program. He continued teaching seminars until his death, at age 93, in 1993.

Deming's system made such an impression that he is known at the **Father of TQM**.

Following are some other significant quality experts and their works:

- **Joseph M. Juran** wrote *The Quality Control Handbook*. Recognized in Japan with the Order of Sacred Treasure. Followers: DuPont, Monsanto, Mobil.
- **Armand V. Feigenbaum** wrote *Total Quality Control.* Argued that quality should be company-wide, not confined to the quality control departments.
- **Philip B. Crosby wrote** *Quality Is Free.*
- **Michael Hammer and James Champy** wrote *Reengineering the Corporation.*
- **James Champy** wrote *Reengineering Management.*
- **Peter Drucker** wrote *Post-Capitalist Society.*

Although several individuals (mentioned above) contributed to the concept of TQM, the three mostly widely cited "masters" of quality are W. Edwards Deming (1900–1993), Joseph M. Juran, and Philip Crosby. Even though each has promoted the importance of quality emphasis, their ideas and backgrounds are not always consistent.

Joseph Juran

Joseph Juran started out professionally as an engineer in 1924. In 1951, his first Quality Control Handbook was published and led him to international prominence.

The Union of Japanese Scientists and Engineers (JUSE) invited Juran to Japan in the early 1950s. He arrived in 1954 and conducted seminars for top- and middle-level executives. His lectures had a strong managerial flavor and focused on planning, organizational issues, management's responsibility for quality, and the need to set goals and targets for improvement. He emphasized that quality control should be conducted as an integral part of management control.

Intrinsic to Juran's message is the belief that quality does not happen by accident; it must be planned. Juran sees quality planning as part of the quality trilogy of quality planning, quality control, and quality improvement. The key elements in implementing company-wide strategic quality planning are in turn seen as: identifying customers and their needs; establishing optimal quality goals; creating measurements of quality; planning processes capable of meeting quality goals under operating conditions; and producing continuing results in improved market share, premium prices, and a reduction of error rates in the office and factory.

Juran's formula for results is to establish specific goals to be reached, and then to establish plans for reaching those goals; assign clear responsibility for meeting the goals; and base the rewards on results achieved.

Juran believes that the majority of quality problems are the fault of poor management, not poor workmanship, and that long-term training to improve quality should start at the top with senior management.

Philip Crosby

Philip Crosby is another major contributor to the quality movement. In 1979, he left ITT (International Telephone and Telegraph) and wrote his book, *Quality is Free,* in which he argues that dollars spent on quality and the attention paid to it always return greater benefits than the costs expended on them. Whereas Deming and Juran emphasized the sacrifice required for a quality commitment, Crosby takes a less philosophical and more practical approach, asserting instead that high quality is relatively easy and inexpensive in the long run.

Crosby is the only American quality expert without a doctorate. He is responsible for the **zero defects** program, which emphasizes "doing it right the first time," (DIRFT) with 100 percent acceptable output. Unlike Deming and Juran, Crosby argues that quality is always cost effective. Like Deming and Juran, Crosby does not place the blame on workers, but on management.

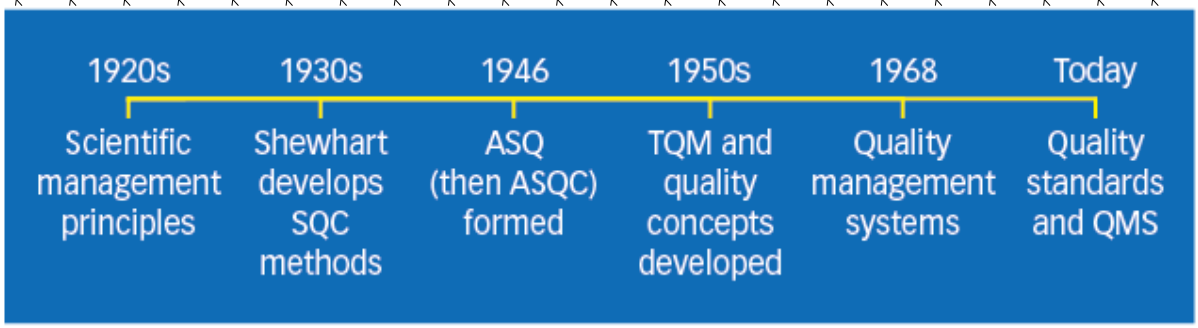
Crosby also developed a 14-point program, which is again more practical than philosophical. It provides managers with actual concepts that can help them manage productivity and quality. His program is built around four Absolutes of Quality Management:

1. Quality must be viewed as conformance to specifications. If a product meets design specifications, then it is a high-quality product.
2. Quality should be achieved through the prevention of defects rather than inspection after the production process is complete.
3. According to Crosby, the traditional quality control approach taken by American firms is not cost effective. Instead, production workers should be granted the authority and responsibility to ensure that quality goods or services are produced at every step of the process.
4. Managers need to demonstrate that a higher standard of performance can lead to perfection—to zero defects. Crosby believed that the company goal should be zero defects.
5. Quality should be measured by the price of nonconformity. Crosby contends that the costs associated with achieving quality should be part of a company's financial system.

History of Total Quality Management (TQM)

The history of total quality management (TQM) began initially as a term coined by the Naval Air Systems Command to describe its Japanese-style management approach to quality improvement. An umbrella methodology for continually improving the quality of all processes, it draws on a knowledge of the principles and practices of:

- The behavioral sciences
- The analysis of quantitative and nonquantitative data
- Economics theories
- Process analysis



1920s	• Some of the first seeds of quality management were planted as the principles of scientific management swept through U.S. industry. • Businesses clearly separated the processes of planning and carrying out the plan and union opposition arose as workers were deprived of a voice in the condition and functions of their work. • The Hawthorne experiments in the late 1920s showed how worker productivity could be impacted by participation.
1930s	• Walter Shewhart developed the methods for statistical analysis and control of qu y.
1950s	• W. Edwards Deming taught methods for statistical analysis and control of qualit to Japanese engineers and executives. This can be considered the origin of TQM • Joseph M. Juran taught the concepts of controlling quality and managerial breakthrough. • Armand V. Feigenbaum's book *Total Quality Control,* a forerunner for the preser understanding of TQM, was published. • Philip B. Crosby's promotion of zero defects paved the way for quality improvem in many companies.
1968	• The Japanese named their approach to total quality "companywide quality contr It is around this time that the term quality management systems arises. • Kaoru Ishikawa's synthesis of the philosophy contributed to Japan's ascendancy as a quality leader.
Today	• TQM is the name for the philosophy of a broad and systemic approach to manag organizational quality. • Quality standards such as the ISO 9000 series and quality award programs such as the Deming Prize and the Malcolm Baldrige National Quality Award specify principles and processes that comprise TQM. • TQM as a term to describe an organization's quality policy and procedure has fallen out of favor as international standards for quality management have been developed. Please see our series of pages on quality management systems for more information.

Kindly visit the following Web Links for MORE information

01]https://study.com/academy/lesson/w-edwards-deming-theory-lesson-quiz.html#:~:text=Edward%20Deming's%20Belief-,W.,can%20call%20total%20quality%20management

02] https://pubmed.ncbi.nlm.nih.gov/16076798/

03]https://www.cliffsnotes.com/study-guides/principles-of-management/productivity-and-total-quality-management/major-contributors-to-tqm

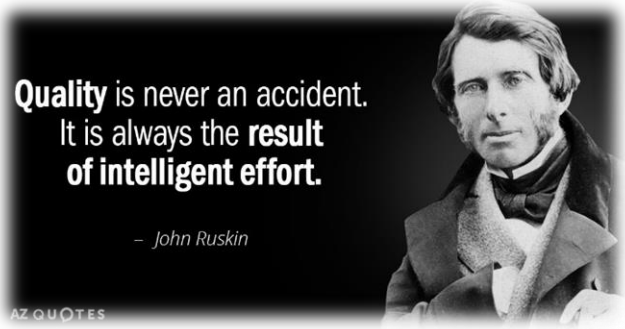
04] https://asq.org/quality-resources/total-quality-management/tqm-history

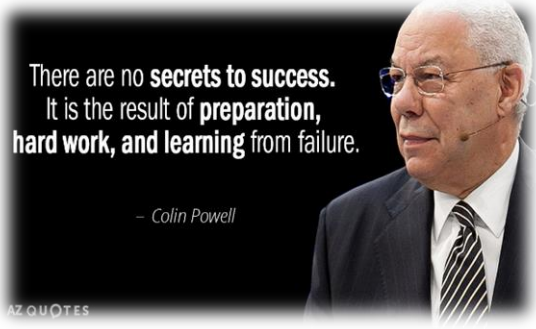
05] https://www.bartleby.com/essay/The-Father-Of-Total-Quality-Management-P3FD3J8WKFV8X

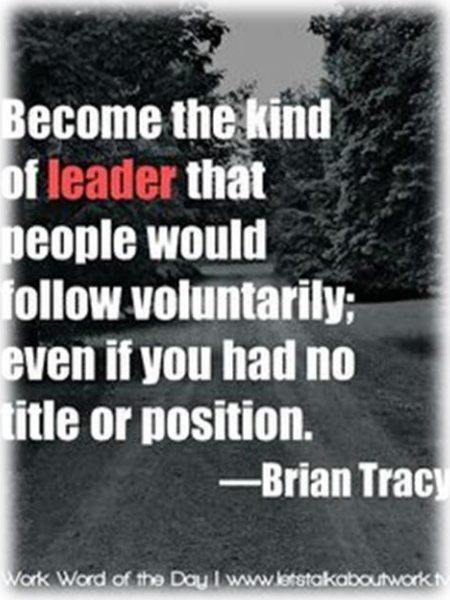
06] https://www.juran.com/blog/quality-management-system/

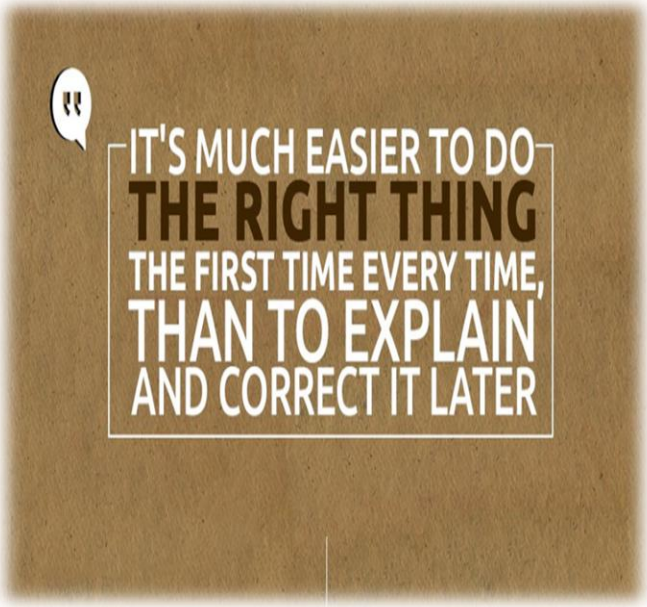
07] https://www.gembaacademy.com/school-of-lean/tqm

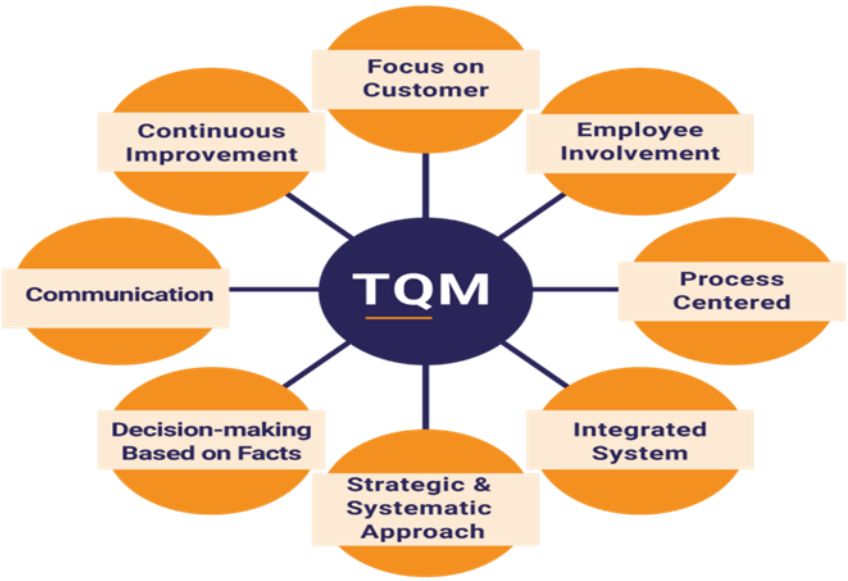
08] http://scihi.org/walter-edwards-deming/


Quality is never an accident.
It is always the result
of intelligent effort.
– John Ruskin
AZ QUOTES

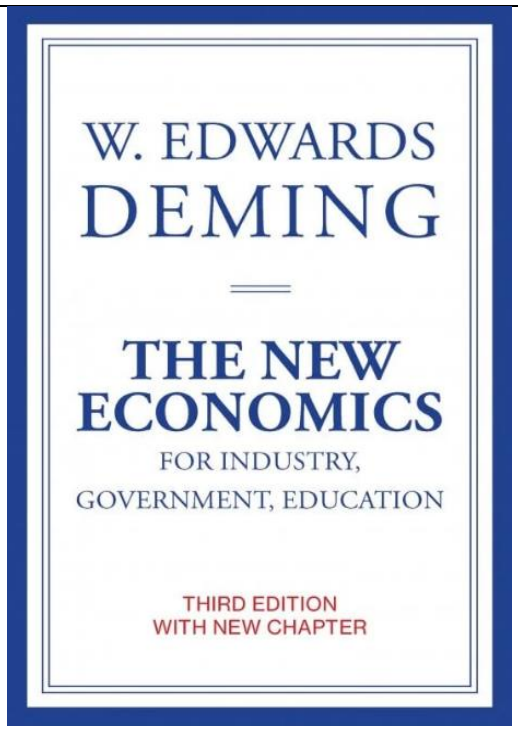
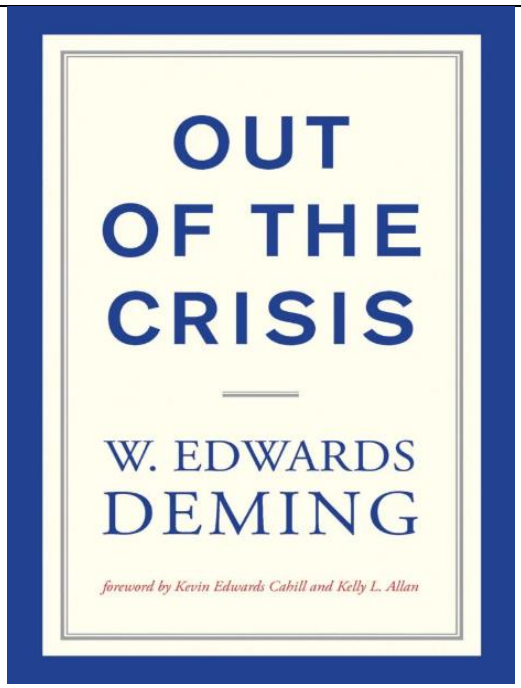

There are no secrets to success.
It is the result of preparation,
hard work, and learning from failure.
– Colin Powell
AZ QUOTES

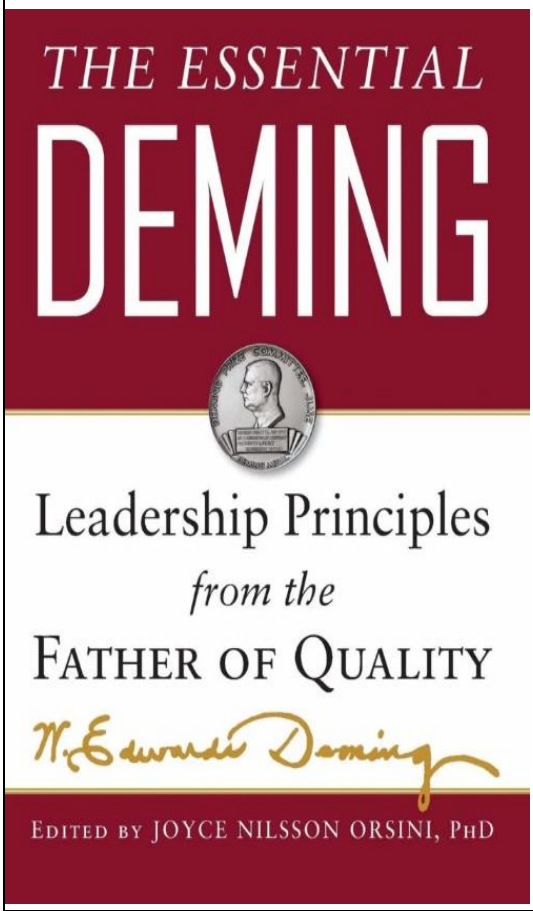

Become the kind
of leader that
people would
follow voluntarily;
even if you had no
title or position.
—Brian Tracy


IT'S MUCH EASIER TO DO
THE RIGHT THING
THE FIRST TIME EVERY TIME,
THAN TO EXPLAIN
AND CORRECT IT LATER


TQM
Focus on Customer
Employee Involvement
Process Centered
Integrated System
Strategic & Systematic Approach
Decision-making Based on Facts
Communication
Continuous Improvement

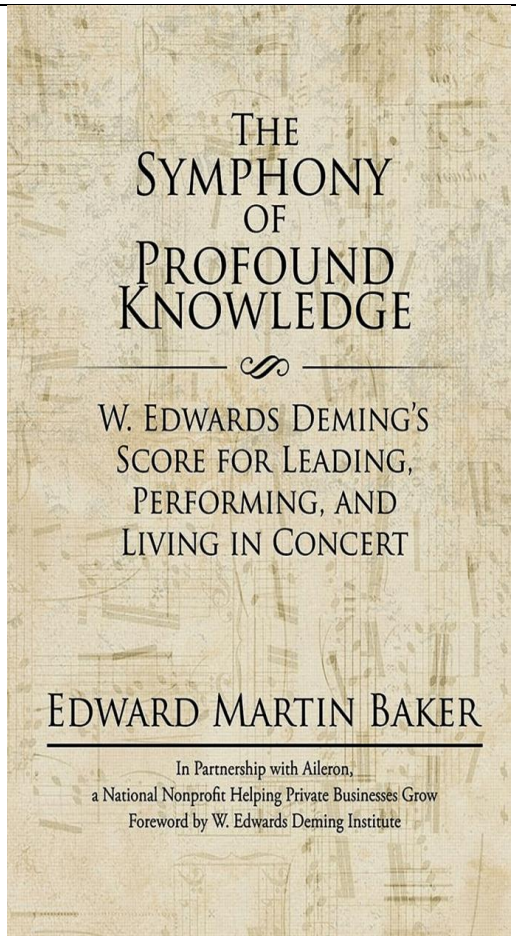
Deming's Books

	In this book, W. Edwards Deming details the system of transformation that underlies the 14 Points for Management presented in Out of the Crisis. The Deming System of Profound Knowledge, as it is called, consists of four parts: appreciation for a system, knowledge about variation, theory of knowledge, and psychology. Describing the prevailing management style as a prison, Deming shows applying the System of Profound Knowledge increases productivity, quality, and people's joy in work and joy in learning. Another outcome is short-term and long-term success in the market. Indicative of Deming's philosophy is his advice to abolish performance reviews on the job, to look deeper than spreadsheets for opportunities, and even to rethink how we teach and manage our schools. Moreover, Deming's method enables organizations to make accurate predictions, which is a valuable tool in today's uncertain economic climate.
	In his classic Out of the Crisis, W. Edwards Deming describes the foundations for a completely new and transformational way to lead and manage people, processes, and resources. Translated into twelve languages and continuously in print since its original publication, it has proved highly influential. Research shows that Deming's approach has high levels of success and sustainability. Readers today will find Deming's insights relevant, significant, and effective in business thinking and practice. This edition includes a foreword by Deming's grandson, Kevin Edwards Cahill, and Kelly Allan, business consultant and Deming expert.



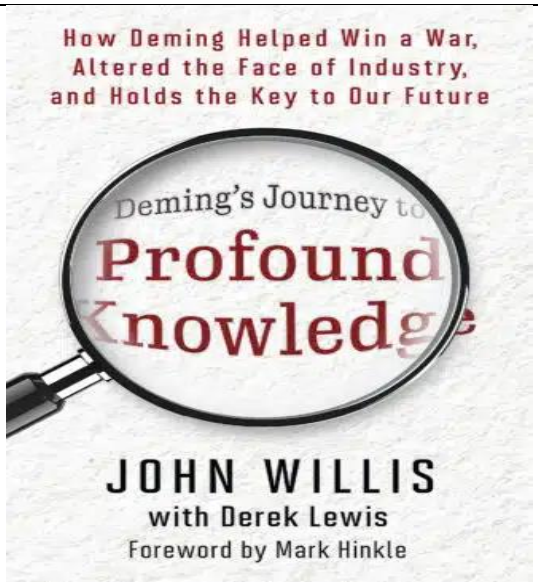
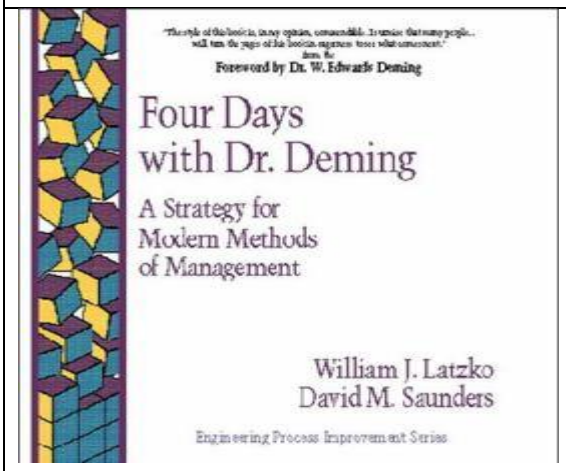
In The Essential Deming, Fordham University professor and Deming expert Dr. Joyce Orsini draws on a wealth of previously unavailable material to present the legendary thinker's most important management principles in one indispensable volume.

The book is filled with articles, papers, lectures, and notes touching on a wide range of topics, but which focus on Deming's overriding message: quality and operations are all about systems, not individual performance; the system has to be designed so that the worker can perform well. The Essential Deming necessarily includes some of Deming's ideas that came to be included in Out of the Crisis and The New Economics, but not all. This book is written for those people who wish to see more of what Deming had to say about management in this world we live in, beyond these two earlier books.



Edward Martin Baker, one of Deming's most valued associates, shares his deep understanding of Deming's System of Profound Knowledge, a set of theories and philosophies that helped reshape the management practices of many large multinational corporations. This included bringing organizations to the economic health and individuals to spiritual and psychological health by attaining dignity and joy in work. The Symphony of Profound Knowledge and what Deming taught contradicts what's learned in school and in the management of organizations. His teachings encourage the reevaluation of what is seen as fact. It provides a thorough understanding of the Deming philosophy and how to apply those concepts to life.

Baker shows how the system can be viewed as a map—a mental representation of the territory managers and others must navigate as they play their roles.

	This is not a biography. This is a story of discovery Part business history, part biography, part journey into deep business sense, author John Willis captures the full picture of W. Edwards Deming's life and influence. Most importantly, it reveals the experiences that led to Deming's greatest discovery: the System of Profound Knowledge, a collection of fundamental truths that show how *any* system or process can be transformed into something greater. From the real-life Rosie the Riveter to a hacker writing US cybersecurity law, Deming's ingenuity and system of thinking changed how we think in the modern world. This book shows how we can take that influence and continue to apply it to our own future.
	Adopting a practical and entertaining approach, this work recreates the experience of attending the late Dr. Deming's Four Day Seminar, enabling readers to absorb his theories and methodologies on quality management. The book is intended for anyone interested in the quality of an organization, from the executives, managers and engineers of an organization, to its stockholders. This description may be from another edition of this product.

His Papers in the Library of Congress

https://findingaids.loc.gov/db/search/xq/searchMfer02.xq?_id=loc.mss.eadmss.ms997017&_faSection=overview&_faSubsection=eadheader&_dmdid=d30661e2

W. Edwards Deming Papers

A Finding Aid to the Collection in the Library of Congress

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Manuscript Division, Library of Congress
Washington, D.C.
1995

Prepared by Manuscript Division staff

Finding aid encoded by Library of Congress, Manuscript Division, 1997

Latest Revision: 2023 February

List of Books

- Deming, W. Edwards (1964) [1943]. Statistical Adjustment of Data. Dover. ISBN 0-486-64685-8. LCCN 64-24416.
- Deming, W. Edwards (1966) [1950]. Some Theory of Sampling. Dover. ISBN 0-486-64684-X. LCCN 66-30538.
- Deming, W. Edwards; Massachusetts Institute of Technology. Center for Advanced Engineering Study (1982). Quality, Productivity, and Competitive Position. Massachusetts Institute of Technology, Center for Advanced Engineering Study. ISBN 978-0-911379-00-6.
- Deming, W. Edwards (2000). The New Economics: For Industry, Government, Education. MIT Press. ISBN 978-0-262-54116-9.
- Deming, W. Edwards (2012). The Essential Deming: Leadership Principles from the Father of Quality. McGraw Hill Professional. ISBN 978-0-07-179021-5.
- Deming, W. Edwards (2018). Out of the Crisis, reissue. MIT Press. ISBN 978-0-262-35003-7.

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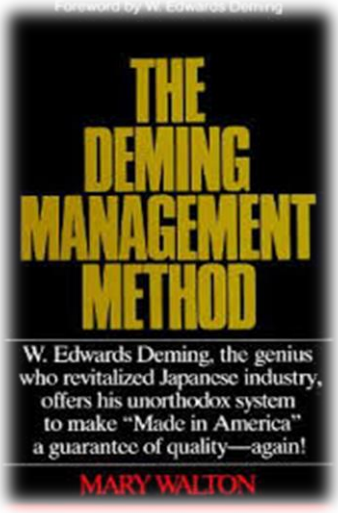
01] https://www.goodreads.com/shelf/show/deming

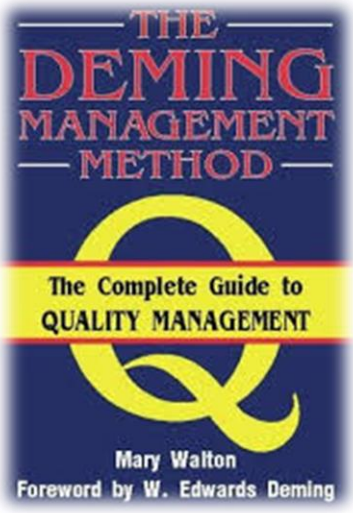
02]https://www.goodreads.com/author/list/310261.W_Edwards_Deming

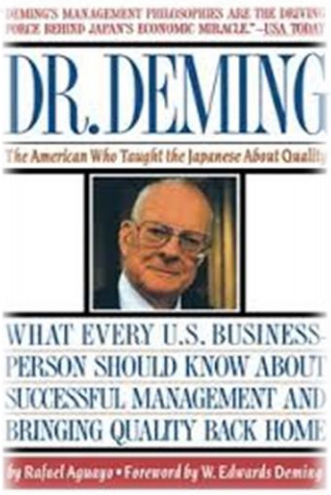
03]https://www.thriftbooks.com/a/w-edwards-deming/201781/

04]https://www.amazon.com/W-Edwards-Deming-Books/s?k=W.+Edwards+Deming&rh=n%3A283155

05] https://www.audible.in/author/W-Edwards-Deming/B000APR1PW


THE DEMING MANAGEMENT METHOD
W. Edwards Deming, the genius who revitalized Japanese industry, offers his unorthodox system to make "Made in America" a guarantee of quality—again!
MARY WALTON



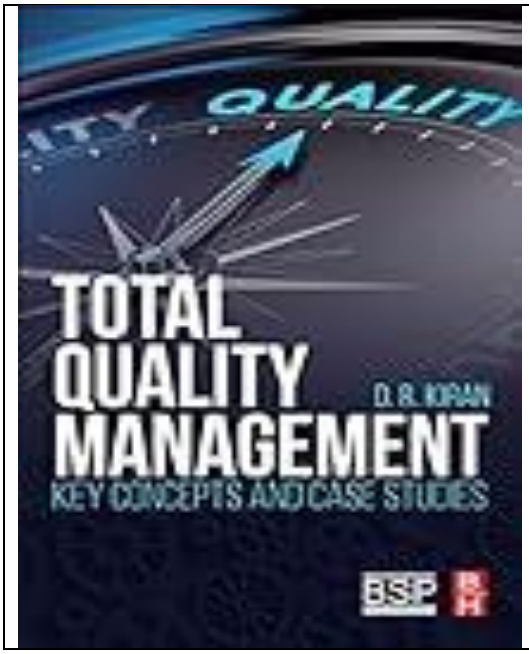


on

TQM

"The most valuable 'currency' of any organization is the initiative and creativity of its members. Every leader has the solemn moral responsibility to develop these to the maximum in all his people. This is the leader's highest priority."

Total Quality Management (TQM) is a cornerstone philosophy in modern business strategy. It emphasizes continuous improvement and customer-centric practices for achieving organizational excellence. Moreover, TQM integrates principles of quality assurance, process improvement, and employee involvement to foster a culture of excellence. Across manufacturing and service industries, TQM has transformed operations, ensuring high-quality products, enhanced customer satisfaction, and operational efficiency. In this blog, we explore TQM fundamentals, key principles, and strategies for businesses to drive sustainable growth and competitive advantage. Let's know about Total Quality Management books.

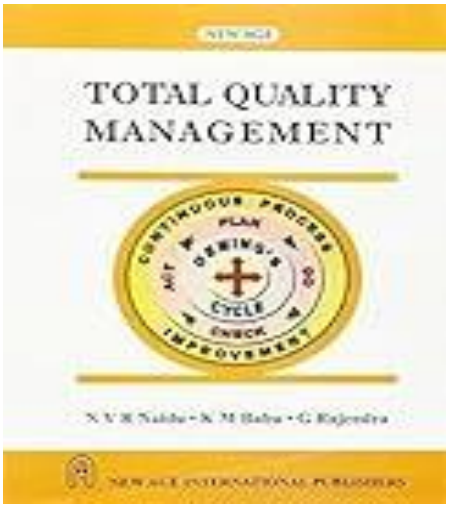


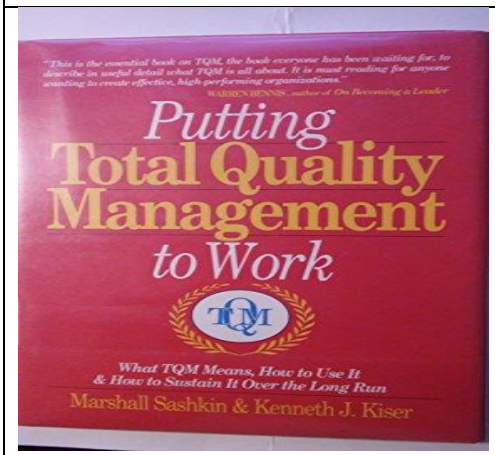
The extensive book "Total Quality Management: Key Concepts and Case Studies" dives into the tenets and methods of Total Quality Management (TQM), a way of thinking that seeks to continuously enhance quality, effectiveness, and customer satisfaction. Thus, the book provides a useful grasp of TQM by fusing theoretical ideas with actual case studies.

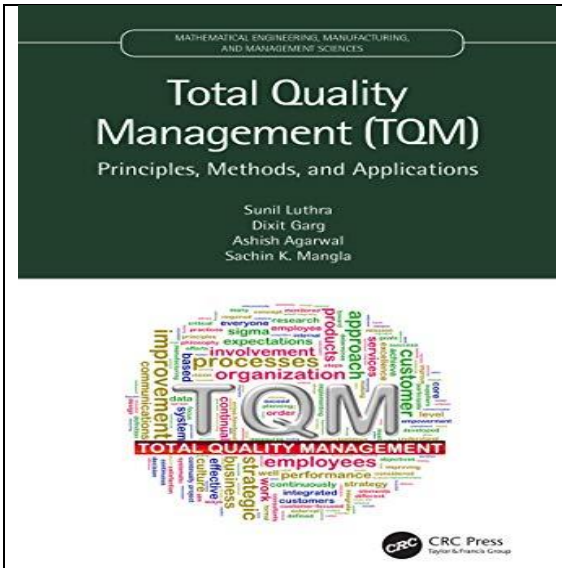
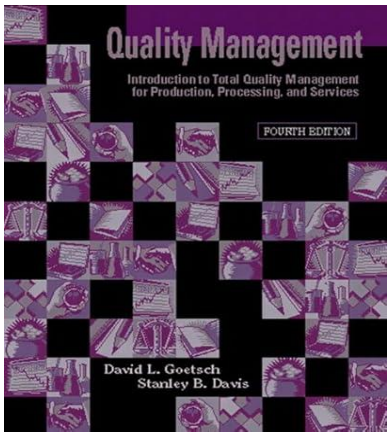
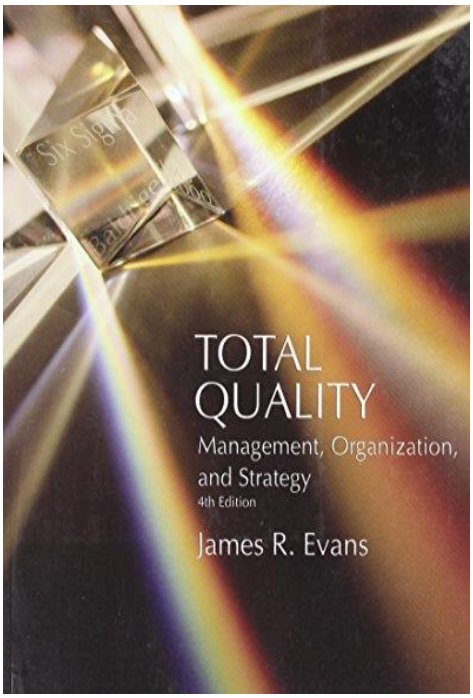
Moreover, the book exposes readers to the fundamental ideas of TQM, placing particular emphasis on the importance of customer focus, leadership, staff involvement, process improvement, and evidence-based decision-making.

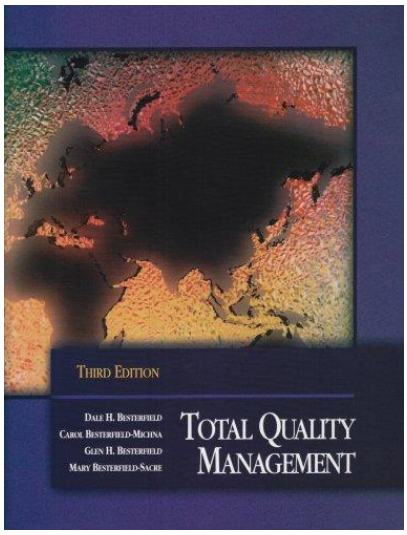
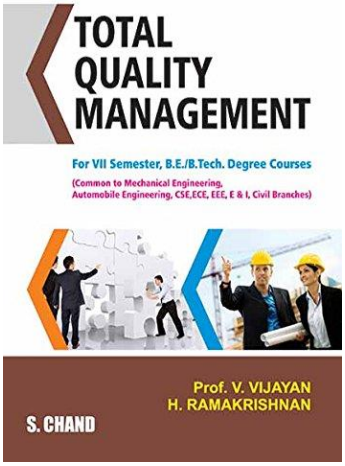
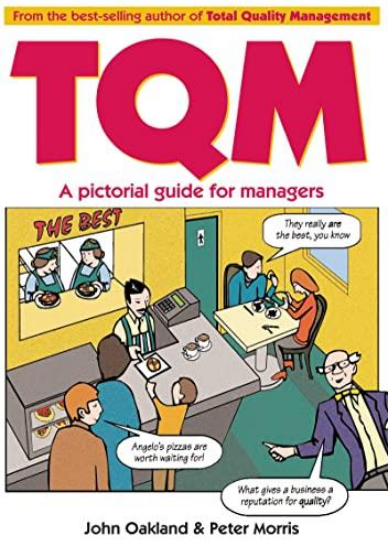
	The comprehensive textbook "Quality Management for Organisational Excellence: Introduction to Total Quality," authored by David L. Goetsch and Stanley B. Davis, offers a full introduction to the concepts and methods of TQM. Moreover, this book is frequently used to teach the ideas of quality management and continuous improvement in academic and professional settings.
	The comprehensive book "Total Quality Management and Operational Excellence," written by John S. Oakland, a famous authority on quality management, delves deeply into the relationship between operational excellence and total quality management (TQM). Within this work, Oakland meticulously explores how operational excellence, characterized by efficient processes and continuous improvement, synergizes with TQM principles to foster organizational success. Moreover, the book underscores the interdependent roles of these concepts, emphasizing how their integration can lead to enhanced customer satisfaction, improved productivity, and sustained competitive advantage. By analyzing case studies and industry best practices, Oakland offers a nuanced understanding of how organizations can leverage both operational excellence and TQM to achieve comprehensive excellence.
	A thorough introduction to the ideas and methods of Total Quality Management (TQM) can be found in the book "Quality Management for Organisational Excellence: Introduction to Total Quality" by David L. Goetsch and Stanley B. Davis. In this authoritative work, the authors meticulously delve into the principles and practices of TQM, offering a comprehensive overview of its key concepts such as continuous improvement, customer focus, and employee involvement. Furthermore, they provide practical methodologies for implementing TQM in diverse organizational settings, ensuring readers gain a thorough understanding of how these principles contribute to organizational excellence. Additionally, this book is frequently used in academic and professional settings to teach the ideas of quality management and continuous improvement. It offers a comprehensive overview of TQM principles and their practical application in various organizational contexts.

	A well-known textbook that offers a thorough and current introduction to Total Quality Management (TQM) principles and practices is "Total Quality Management (TQM) 5th Edition" by Dale H. Besterfield, Carol Besterfield-Michna, Glen Besterfield, and Mary Besterfield-Sacre. Notably, this comprehensive text explores the foundational aspects of TQM, providing insightful perspectives into its application across various organizational contexts. Moreover, the book examines contemporary challenges and emerging trends in quality management, ensuring a comprehensive understanding of TQM's relevance in today's dynamic business environment. Moreover, the book delves into the foundational concepts of TQM, offering detailed insights into its application in various industries such as manufacturing, service sectors, and healthcare. By examining real-world case studies and practical examples, the authors illustrate how TQM principles can be effectively implemented to enhance quality, efficiency, and customer satisfaction.
	The comprehensive book "Total Quality Management" by V. Vijayan and H. Ramakrishnan offers insights into the tenets and procedures of Total Quality Management (TQM). Accordingly, it seeks to give readers a thorough comprehension of TQM ideas and how to use them to improve organizational performance. By examining case studies and practical examples, the authors illustrate the practical application of TQM principles across various industries. Furthermore, the book emphasizes the importance of continuous improvement, customer focus, and employee engagement as integral components of TQM implementation. As a result, readers gain valuable insights into establishing a culture of quality and excellence within their organizations, ensuring sustained competitiveness and customer satisfaction.
	A thorough book that tackles the concepts and methods of Total Quality Management (TQM) in a complete and integrated way is "Total Quality Management – An Integrated Approach" by DR Kiran. Consequently, the goal of this book is to give readers a thorough understanding of TQM ideas and how to apply them successfully in organizations. By examining both theoretical frameworks and practical examples, Sardana illustrates the interconnectedness of TQM principles with organizational processes, ensuring a holistic approach to quality management.

	The textbook "Total Quality Management (As per VTU Syllabus)" by N. V. R. Naidu was created expressly to match the syllabus of Visvesvaraya Technological University (VTU) and covers comprehensively the concepts and methods of TQM in accordance with the course requirements. Specifically, it emphasizes the practical application of TQM principles within the framework of VTU's curriculum. Further, the book introduces the concept of TQM and its applicability in modern organizations in its opening chapters.
Please visit the following Web Page to know MORE about these EIGHT books. https://learntransformation.com/total-quality-management/	

	Recommended for: Executives & Managers implementing Total Quality Management. Beginner to Intermediate readers. You will: • Understand the principles of Total Quality Management (TQM) and its application in business improvement. • Learn how TQM involves all parts of a business, from design to marketing, in achieving quality standards. • Discover the importance of involving everyone in a company, from executives to junior employees, in pursuing quality results. • Understand that TQM is a management technique, not a quick fix, designed to commit to the highest quality outcomes. • Learn how TQM is a philosophy that aims to optimize resources and opportunities for organizational change
	Total quality management (TQM) has become a hot topic in the business world with most major companies establishing TQM programmes. This concise introduction explains in simple terms exactly what quality management means in practice and shows how the basic principles can be implemented in large and small organisations. The authors provide an overview and history of the major approaches to quality management. The present the contributions of the movement's founders, including Deming, Juran, Ishikawa, and Feigenbaum, and explain how their approaches differ. In a succinct fashion, they: define the checkpoints of the quality management process; describe new and traditional tools of TQM; show how the entire process is rooted in the culture of an organisation; and explain how to create and lead a TQM culture.

	Organisations are now focused on total customer satisfaction. However, there is a lack of understanding the requirements and the customer needs. Total Quality Management (TQM) integrates all phases and ensures a defect free quality product. This textbook provides the understanding of all aspects of TQM and the implementation. This textbook covers all aspects of TQM, discusses quality systems in detail, highlights the importance of the needs of the customer, and presents the concept of Total Productive Maintenance (TPM). Written as a textbook for students of engineering and management, but also explains all quality systems which will be helpful to all organisations in choosing the correct quality system and helpful to managers in decision making while analyzing.
	This direct, straightforward book provides readers with material that focuses on making the theories and principles of total quality practical and useful. It covers all of the elements of total quality, including several that receive little or no attention in other total quality books. Practitioners in a corporate setting will find it a valuable guide in helping them understand and implement total quality. Topics which are covered include Quality and Global Competitiveness, Strategic Management: Planning and Execution, Quality Management and Ethics, and Communication and Interpersonal Relations. For settings in which people want to learn to be effective agents of the total quality approach, or are attempting to implement total quality.
	Total Quality Management presents the basic principles and tools associated with TQ and provides many illustrations and end-of-chapter cases that can be used as the basis for class discussion. Many cases focus on large and small companies in manufacturing and service industries in North and South America, Europe, and Asia-Pacific. Unlike most books on TQ, this one is organized according to traditional management topics. This organization helps students to see the parallels between TQ and management theories in areas such as organizational design and leadership. TQ is often presented as new or different, which it clearly is not. This book has three objectives: to show students how these principles and methods have been put into effect in a variety of organizations, to illustrate the relationship between TQ principles and the theories and models studied in management courses and to familiarize students with the basic principles and methods associated with total quality

	Presenting sufficient theory to ensure a sound understanding of basic concepts, this progressive book provides a fundamental, yet comprehensive exploration of total quality management (TQM) in an all-encompassing, single-volume review that covers not only the principles and practices, but also the tools and techniques. **Recommended for:** Quality management professionals and trainers. Intermediate readers. **You will:** • Understand principles and practices of TQM • Learn tools and techniques of TQM • Explore benchmarking and quality management systems • Understand quality function deployment and process control • Discover Taguchi's quality engineering
	Designed as a textbook for undergraduate engineering students of Mechanical, Civil, Automobile, Electronics and Communication, Electronics and Instrumentation, Computer Science and Engineering and Information Technology, this book presents the fundamental concepts of Total Quality Management in a compact and lucid manner.
	Another new book in the popular and original series of pictorial guides - John Oakland cuts through the complex concepts and confusing jargon associated with implementing Total Quality, and Peter Morris presents the information in his inimitable pictorial style. This book will show students and managers what they need to understand about TQM in the simplest, clearest and most memorable form. Professor John Oakland is undoubtedly the British guru of quality management. **Recommended for:** Managers & Students in Quality Management. Beginner to Intermediate readers. **You will:** • Understand Total Quality Management in a simple form • Learn from John Oakland's pragmatic approach to TQM • Discover Peter Morris' unique pictorial style • Memorize key concepts easily through illustrations • Apply TQM principles in organizations effectively

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06] https://link.springer.com/book/10.1007/978-1-349-26153-6

07] https://www.sanfoundry.com/best-reference-books-total-quality-management/

08] https://www.phindia.com/Books/BookDetail/9788120329959/total-quality-management-janakiraman-gopal

09] https://www.isotracker.com/blog/8-books-on-quality-management-that-are-well-worth-reading/

10] https://management.org/books/tqm-bks.htm

11] https://www.istockphoto.com/photos/total-quality-management

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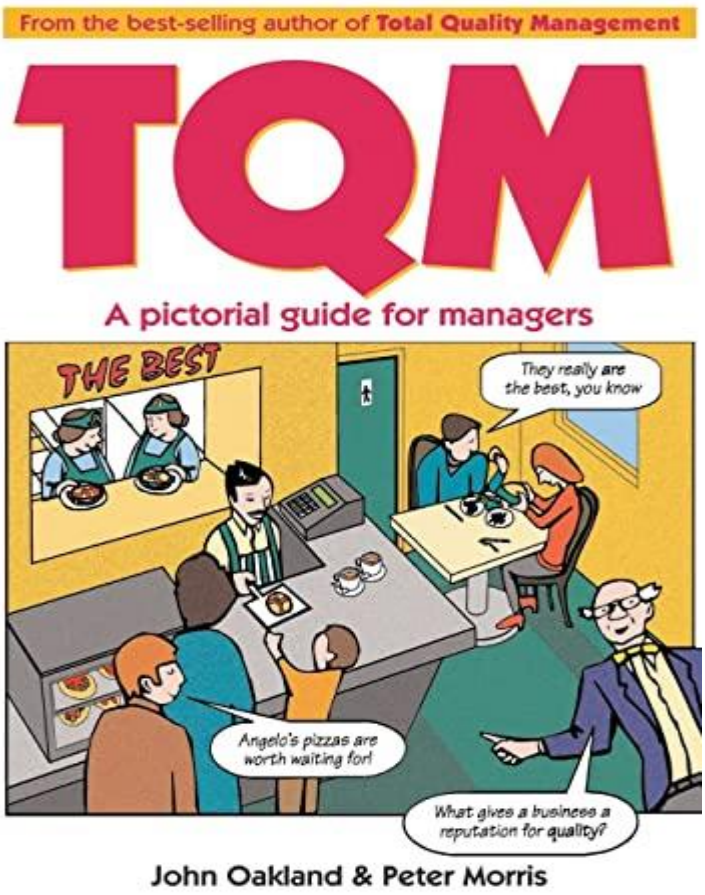
Pictorial GUIDE

TQM


From the best-selling author of Total Quality Management
TQM
A pictorial guide for managers
THE BEST
They really are the best, you know
Angelo's pizzas are worth waiting for!
What gives a business a reputation for quality?
John Oakland & Peter Morris

Author:

NDD, ATD, is an illustrator and designer of educational and training materials, head of design and manager of the Media Service Unit, University of Sussex, co-founder and studio manager of Business Training and producer of corporate videos. Peter is co-author of Finance for Small Businesses, Total Quality Management, Selling Products and Services (all published by Butterworth-Heinemann).

About this Edition

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Synopsis

Another new book in the popular and original series of pictorial guides - John Oakland cuts through the complex concepts and confusing jargon associated with implementing Total Quality, and Peter Morris presents the information in his inimitable pictorial style. This book will show students and managers what they need to understand about TQM in the simplest, clearest and most memorable form.

Professor John Oakland is undoubtedly the British guru of quality management. Following a successful industrial career in research and production management, he has developed a pragmatic approach to introducing TQM which he and his colleagues have used successfully in literally thousands of organizations. He is founder and Executive Chairman of OAKLAND Consulting Plc. and Head of the European Centre for TQM at the University of Bradford Management Centre. Also published by Butterworth-Heinemann are John Oakland's bestselling Total Quality Management (now in its second edition) and Cases in Total Quality Management. Peter Morris is the creative force behind the illustrations in all Butterworth-Heinemann's pictorial guides.

Originally trained as an art teacher, he spent several years as an industrial designer in Canada before returning to England to design educational and training materials for the University of Sussex. His experience working on industrial contracts convinced him, quite rightly, that cartoons are frequently the best way to illustrate the abstractions of business life. Part of the popular and original series of pictorial guides Enables students and managers to grasp the basic concepts of TQM TQM presented in its simplest, clearest and most memorable form

Please visit this Web Page to view the BOOK.

https://www.google.co.in/books/edition/Total_Quality_Management_A_pictorial_gui/GpErBgAAQBAJ?hl=en&gbpv=1

Pictures of

TQM

Higher profitability
Improved employee morale
Removal of defects and waste
Improved customer focus and satisfaction
Enhanced shareholder and stakeholder value
Improved and innovative processes
Reduced costs and better cost management
Increased customer loyalty and retention
Flexibility to changing market conditions
Strengthened competitive position
BENEFITS OF TQM

TOTAL QUALITY
MANAGEMENT

TQM
TOTAL QUALITY MANAGEMENT

TQM

TQM Framework In A Nutshell
FourWeekMBA

Principles of Total Quality Management
Communication
Customer focussed
Process centered
Employee involvement
TQM
Total Quality Management
Continuous improvement
Strategic and Systematic Approach
Fact-based decision-making
Integrated system

SKILLS
MEANING OF TOTAL QUALITY MANAGEMENT (TQM)
WHAT IS TQM?

TQM TOOLS
educba.com

Total Quality Management (TQM)
7 Principles | Advantages | Dis-advantages
Best
QUALITY
Guaranteed
educationleaves.com

PROCESS
MANAGEMENT
WORKFORCE
TOTAL QUALITY MANAGEMENT
ORGANIZATION
CHECK
ANALYSIS

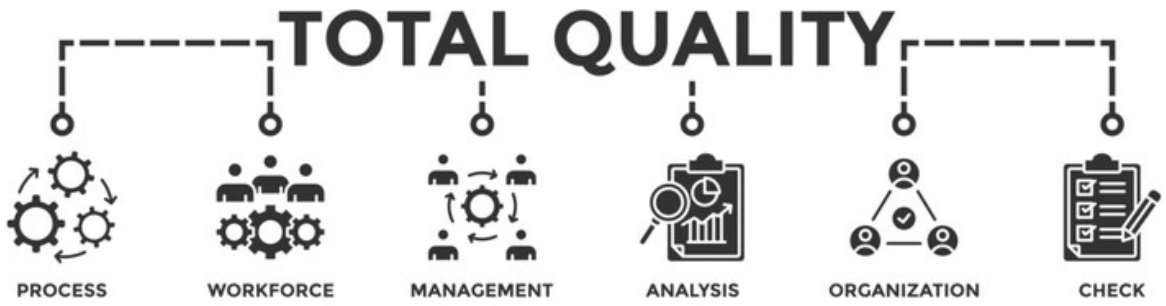
Total Quality Management : Principles & Importance
VAKIL SEARCH

TOTAL
QUALITY
MANAGEMENT

Meaning of
Total Quality Management
TQM is an approach in which all members of the organization can achieve long-term success by improving quality. Its focus on continuous improvement.

TOTAL QUALITY MANAGEMENT (TQM) IN HEALTHCARE

8 Elements of Total Quality Management (TQM)
Elements of (TQM)
Communication
Ethics
Integrity
Trust
Training
Teamwork
Leadership
Recognition


TOTAL QUALITY
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Total Quality Management
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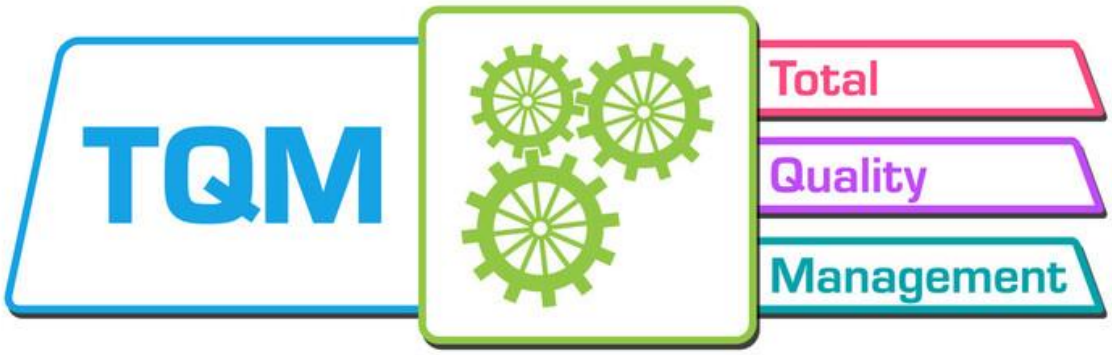
Focus on Customer
Continuous Improvement
Communication
Decision Making
TQM
Employee Involvement
Process Centered
Integrated System
Strategic Approach


TQM
Total
Quality
Management

PROCESS
MANAGEMENT
WORKFORCE
TOTAL QUALITY MANAGEMENT
ORGANIZATION
CHECK
ANALYSIS

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PROCESS
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MANAGEMENT
ANALYSIS
ORGANIZATION
CHECK

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The Deming Prize

The Deming Prize is an annual award presented to an organization that has implemented TQM suitable for its management philosophy, scope/type/scale of business, and management environment. Regardless of the types of business, any organization can apply for the Prize under certain conditions, be it public or private, large or small, domestic or overseas, or part of or entire organization. There is no limit to the number of potential recipients of the Prize each year. All organizations that score the passing points or higher upon examination will be awarded the Deming Prize. However, the organizations wishing to apply for the Deming Prize must carry out the TQM Diagnosis by the Deming Prize Committee no later than one year prior to the year of application. Please refer to "TQM Diagnosis by the Deming Prize Committee" for information.

Organizations Qualified for Receiving the Deming Prize

The Deming Prize is given to applicant organizations that realize the following three particulars by means of TQM.

A) Under clear management policies that reflect its management principles, industry, business, scope and business environment, the company has established proactive customer driven business objectives and strategies based on social responsibility of the organization. And the top management exhibits leadership in their formulation.

B) TQM is being suitably utilized and implemented for the realization of business objectives and strategies mentioned under A) above.

C) As a result of B), along with achieving effect regarding business objectives and strategies of A) above, organizational ability required for future growth has been secured.

More specifically, the following criteria are used for the examination to determine whether or not the applicant organizations should be awarded the Prize:

How to Apply for the Deming Prize	—Due date: February 20th The application form must be completed and submitted with necessary documents as well as the application fee. The application deadline is February 20th.
Examination	The Deming Prize Examination Committee examines and selects the candidates for the Prize. A document examination will be carried out based on the Description of TQM Practices submitted by the applicant organization. If the applicant organization passes the document examination, an on-site examination will be conducted. The Committee makes judgment according to the evaluation criteria and reports the results to the Deming Prize Committee. The examination process is not open to the public, and all possible measures are taken to ensure the confidentiality of applicant organizations.
Determination of the Winners	—Mid October According to the report by the Committee, the Deming Prize Committee determines the winners of the Prize and notifies them. In the event that the applicant has not attained passing points, final judgment is reserved and, unless the applicant requests withdrawal, the status is considered as "continued examination." Subsequent examinations are limited to twice during the next three years.
Announcement of the winners	—Mid October After the Prize winners have been determined by the Deming Prize Committee as mentioned above, the winners are announced through the proper JUSE publication media with the reasons for receiving the Prize.
Award Ceremony	—Mid November The winners receive the Deming Medal with an accompanying Certificate of Merit from the Deming Prize Committee. The winners also receive a written report on the examination findings (including recommendations for future improvement of their TQM activities.)
Winners Presentations by Prize Winners	The Winners Presentations will take place after the award ceremony.
Status Report and Post-Prize Review Three Years after Receiving the Prize	The prize winner is requested to submit a short report on the status of its TQM practices three years after having received the prize. As a rule, post-prize review for about one-day will be conducted based on the report. In lieu of this review, the prize winner may also choose the following to further promote and develop its TQM: 1) To receive TQM Diagnosis by the Deming Prize Committee Members. 2) To receive the examination for the Deming Grand Prize (former Japan Quality Medal). (the TQM diagnosis by the Deming Prize Committee is mandatory at least one year prior to your desired year of application.) As for the details, please contact the Secretariat for the Deming Prize Committee.

Please visit the Web Links to know MORE!

[01] https://www.juse.or.jp/deming_en/

[02] https://kpmg.com/in/en/home/services/advisory/business-consulting/transformation-business-excellence/total-quality-management/tqm-deming-prize.html

[03] https://www.juse.or.jp/deming_en/winner/
(Winners List)

WED

[**W**illiam **E**dwards **D**eming]

@

MGR

[12-14 Oct 2011]

Commemorating
111th Birth Anniversary of
Dr Willim Edwards Deming
[14 Oct 2011]

Department of Management Studies
Dr MGR Educational and Research Institute

had organized an
International Conference on
"*Quality Management System*"
during 12-14 Oct 2011

&

published a Book entitled
"QUALITY MANTRA
in 21st Century"
containing 86 research papers/articles

[The Quality Control of India has funded
the cost of the publication of the book]

Quality Mantra IN 21ST CENTURY

Editor
Prof Dr S Ramalingam

Department of Management Studies
Dr MGR
Educational and Research Institute
UNIVERSITY
Maduravoyal, Chennai 600 095, INDIA

Quality Mantra
IN 21ST CENTURY

Quality has been part of human history from its earliest beginnings. In recent years quality has achieved a significant renaissance as organisations recognise that it is the key to achieving sustained long-term competitive advantage.

Early renditions of Quality Management System [QMS] began with the great entrepreneurs of the late 19th century who first perfected the idea of mass production. There were more employees to manage, hardware to maintain, and processes to make efficient. However, deadlines were not quite forgiving of these new problems. The businessmen also realized the volatile quality that was coming off of their lines.

Most of the current ideas for the QMS came from an American working for Japan. Dr W Edwards Deming did much of his research on statistics, applying his knowledge to the workplace. He improved design, product quality, testing and sales, and is much of the reason that Japan has a worldwide reputation for quality products.

In the age of the internet, information is becoming the life-line for survival. If one measurable parameter of quality is continuous improvement, then it is the quality of an organisation's information system that determines its effectiveness in the information age. In the era of customer-driven economy and global competition, transnational corporates give high priority to quality products and services.

This book is a compilation of papers presented during the **International Conference on "Quality Mangement System"**, organised during 12-14 October 2011, in commemoration of 111th Birth Anniversary of Dr William Edwards Deming.

This book is published with the financial aid from
Quality Council of India

QCI

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QUALITY MANTRA
in 21st Century

Editor
Prof Dr S Ramalingam

Department of Management Studies
DR MGR
Educational and Research Institute
UNIVERSITY
Maduravoyal, Chennai – 600 095

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In Commemoration of 111th Birth Anniversary of Dr W Edwards Deming [14 Oct 2011]

11 Oct 1900 – 20 Dec 1993

Preface

The quality movement can trace its roots back to medieval Europe, where craftsmen began organizing into unions called guilds in the late 13th century. Until the early 19th century, manufacturing in the industrialized world tended to follow this craftsmanship model. The factory system, with its emphasis on product inspection, started in Great Britain in the mid-1750s and grew into the Industrial Revolution in the early 1800s. In the early 20th century, manufacturers began to include quality processes in quality practices.

After the United States entered World War II, quality became a critical component of the war effort: Bullets manufactured in one state, for example, had to work consistently in rifles made in another. The armed forces initially inspected virtually every unit of product; then to simplify and speed up this process without compromising safety, the military began to use sampling techniques for inspection, aided by the publication of military-specification standards and training courses in Walter Shewhart's statistical process control techniques.

The birth of total quality in the United States came as a direct response to the quality revolution in Japan following World War II. The Japanese welcomed the input of Americans Joseph M Juran and Dr W Edwards Deming and rather than concentrating on inspection, focused on improving all organizational processes through the people who used them.

At first, U.S. manufacturers held onto to their assumption that Japanese success was price-related, and thus responded to Japanese competition with strategies aimed at reducing domestic production costs and restricting imports. This, of course, did nothing to improve American competitiveness in quality.

As years passed, price competition declined while quality competition continued to increase. By the end of the 1970s, the American quality crisis reached major proportions, attracting attention from national legislators, administrators and the media. A 1980 NBC-TV News special report, "*If Japan can… Why Can't we?*" highlighted how Japan had captured the world auto and electronics markets. Finally, U.S. organizations began to listen.

By the 1970s, U.S. industrial sectors such as automobiles and electronics had been broadsided by Japan's high-quality competition. The chief executive officers of major U.S. corporations stepped forward to provide personal leadership in the quality movement. The U.S. response, emphasizing not only statistics but approaches that embraced the entire organization, became known as Total Quality Management (TQM). Several other quality initiatives followed. The ISO 9000 series of quality-management standards, for example, were published in 1987. The Baldrige National Quality Program and Malcolm Baldrige National Quality Award were established by the U.S. Congress the same year. American companies were at first slow to adopt the standards but eventually came on board.

The history of quality management, from mere 'inspection' to Total Quality Management, and its modern 'branded interpretations such as 'Six Sigma', has led to the development of essential processes, ideas, theories and tools that are central to organizational development, change management, and the performance improvements that are generally desired for individuals, teams and organizations. These free resources, materials and tools are an excellent

guide to the quality management area, for practical application in organizations, for study and learning, and for teaching and training others. Every organization would like to improve the way it operates, whether that means increasing market share, driving down costs, managing risk more effectively or improving customer satisfaction. A quality management system gives the framework needed to monitor and improve performance in any chosen area.

In the few years since the turn of the century, the quality movement seems to have matured beyond Total Quality. New quality systems have evolved from the foundations of Deming, Juran and the early Japanese practitioners of quality, and quality has moved beyond manufacturing into service, healthcare, education and government sectors. The paradigm shift is from 'management of quality' in 20th century to 'quality of management' in 21st century.

Dr. Juran, the Quality guru, put it succinctly,"In God we trust, all others, bring data." In the age of the internet, information is becoming the life-line for survival.If one measurable parameter of quality is continuous improvement, and then it is the quality of an organisation's information system that determines its effectiveness in the information age. In the Indian context, either data is not collected properly or it is not analysed properly. Is Quality only a mantra in Indian companies?

In the last two decades, organisations have experienced a period of great change in their markets and operations. International and domestic competition has meant that many organisations have faced an increasingly turbulent and hostile environment. Customers have become more demanding, competition has become more intense and sophisticated and the pace of technological change has quickened. Regulators and consumer groups have also added to these pressures. As a result, many organisations have adopted a range of improvement approaches in response to these forces. We have seen the growing adoption of quality management systems standards such as ISO9000, the emergence of Total Quality Management (TQM), Business Process Engineering (BPR), business excellence, performance excellence, lean thinking, six sigma etc, etc. The battle weary could be excused from taking a rather jaundiced view of this ever-lengthening list of "quality" offers but, by and large, they share many of the principles and elements that are found in TQM. Many companies that are achieving the most significant business results today, made a shift in focus from the management of quality in the twentieth century to the quality of management in the twenty-first century. The big difference is that these companies focus on quality as a fundamental organization and market-wide strategy for their company's competitiveness.

Quality in 21st Century focuses on the call for a more expansive use of quality practices throughout business in the twenty-first century than in their original application in manufacturing. It also calls for a definitive emphasis on the use of quality principles throughout health care, education, technology, medicine and government. The editor compiled a collection of papers that focus on the emerging themes in quality including social values, healthcare, environment, corporate governance, higher education, information technology, etc. I hope that this small step would act as a catalyst for the young, innovative and challenging minds of the 21st century.

Chennai – 600 095
13 October 2011

Prof Dr S Ramalingam
Editor

Foreword

The progress in quality management, from the stage of mere 'inspection' to Total Quality Management, has led to the development of essential processes, ideas, theories and tools that are central to the organizational development, change management, and the performance improvements that are generally desired for all organizations.

In the early 1950's, quality management practices developed rapidly in Japanese plants, and had become a major theme in Japanese management philosophy by 1960 and the quality control and management had become a national preoccupation. By the late 1960's/early 1970's Japan's imports into the USA and Europe increased signif cantly, due to its low cost, higher quality products, compared to those of the Western counterparts.

In 1969 the f rst international conference on quality control, sponsored by Japan, America and Europe, was held in Tokyo. In a paper given by Feigenbaum, the term "total quality" was used for the f rst time, and referred to wider issues such as planning, organisation and management responsibility. Ishikawa gave a paper explaining how "total quality control" in Japan was different, meaning that of "company wide quality control", and describing how all employees, from top management to the workers, must study and participate in quality control. Company wide quality management was common in Japanese companies by the late 1970's.

The quality revolution in the West was slow to follow, and did not begin until the early 1980's. When companies introduced their own quality programmes and initiatives to looking at the Japanese success, Total quality management (TQM) became the centre of these drives in most cases.

In the 1980s to the 1990s, a new phase of quality control and management began in the name of "Total Quality Management (TQM)". Having observed Japan's success of handling quality issues, Western companies started to introduce their own quality initiatives. TQM, developed as a catch all phrase for the broad spectrum of quality-focused strategies, programmes and techniques during this period, and became the centre of focus for the Western Quality Movement.

A typical definition of TQM includes phrases such as: customer focus, the involvement of all employees, continuous improvement and the integration of quality management into the emtire organisation. Although the definitions were all similar, there was confusion. It was not clear

what sort of practices, policies, and activities needed to be implemented to fit the TQM definition at that time.

In 1988 a major step forward in quality management was made with the development of the Malcolm Baldrige Award in the United States. The model, on which the award was based, represented the first clearly defined and internationally recognised TQM model. It was developed by the United States government to encourage companies to adopt the model and improve their competitiveness.

In response to this, a similar model was developed by the European Foundation of Quality Management in 1992. This EFQM Excellence Model is the framework for the European Quality Award. Today, hundreds of quality awards and several models exist all over the world.

While leading organisations compete to win awards, the main purpose of these awards is to encourage more companies to adopt quality management principles. The models are practical tools; they help organisations to measure where they are now and where they want to be in the future. The models also help organisations to create a plan to reduce the gap between these positions.

In this scenario, this compilation of papers presented in the International Conference on "Quality Management System" organized by the Department of Management Studies of our University during 12-14 October 2011 in commemoration of 111th Birth Anniversary [14 October 2011] of Dr William Edwards Deming makes an interesting reading. The collection covers wide range of topics enveloping the fields of education, healthcare, automobile industry, etc. This will be a useful source for those who are interested in knowing the intricacies of Quality Management System.

I congratulate the staff of the Department in this endeavour.

Prof Dr P Aravindan
Vice-Chancellor
Dr MGR University
Chennai – 600 095
14 October 2011

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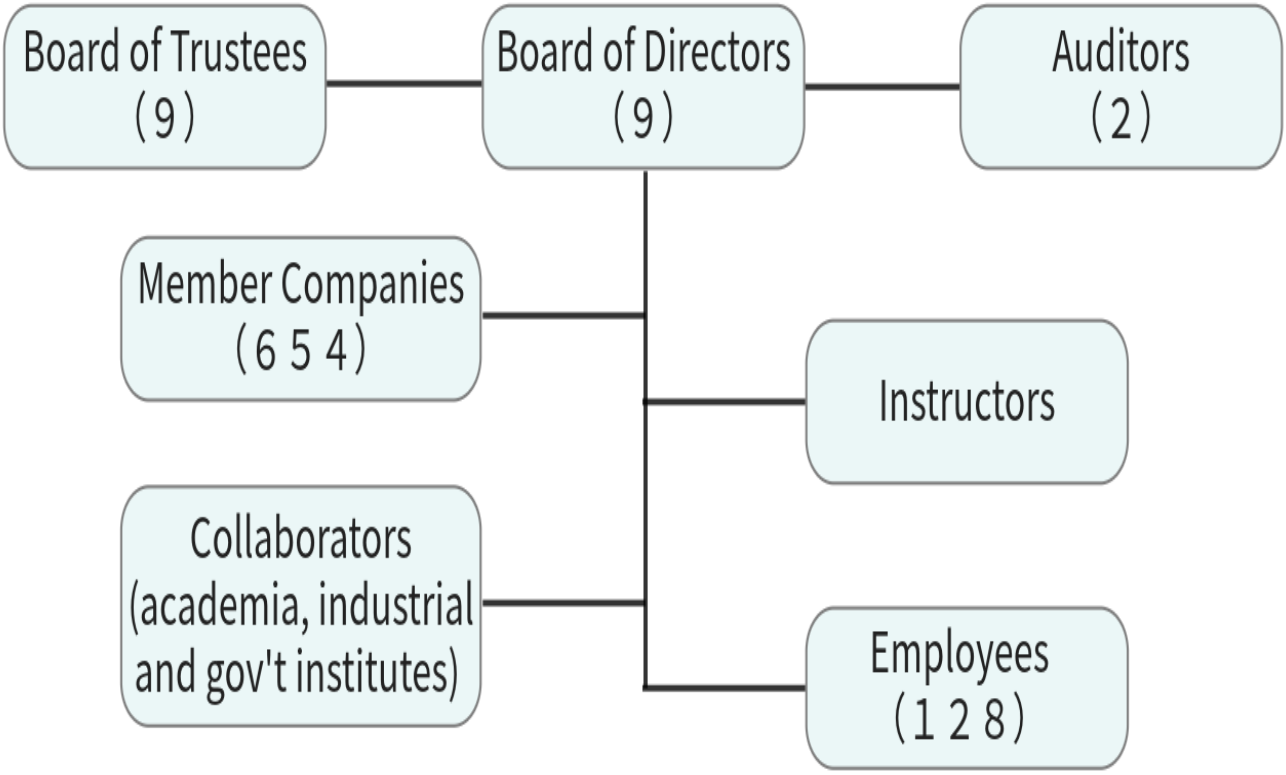
JUSE

Union of Japanese Scientists and Engineers

https://www.juse.or.jp/english/

JUSE Organization Structure



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https://en.wikipedia.org/wiki/Union_of_Japanese_Scientists_and_Engineers

https://qcfi.in/tag/union-of-japanese-scientists-and-engineers/

日本科学技術連盟	
Non-ministerial government department overview	
Formed	1946
Headquarters	Odakyu Daiichi Seimei Building 4F, 2-7-1 Nishi-Shinjuku, Shinjuku-ku, Tokyo 163-0704 35.6918°N 139.6910°E
Minister responsible	• Hirokazu Matsuno
Parent Non-ministerial government department	Ministry of Education, Culture, Sports, Science and Technology
Website	www.juse.or.jp/english

JUSE is a not-for-profit organization, established in 1946, under the jurisdiction of Ministry of Education, Technology, Sports and Science of the Japanese Government. JUSE promotes and offers education and training programs in the field of Management Science in relation to Quality Management. Areas and activities covered are; statistical quality control, management tools and methods, quality assurance, reliability engineering, small group activities, software quality, medical quality and ISO relations.

After the end of the World War II, the Government of Japan promoted the creation of industrial organizations, which led to the creation of JUSE in 1946, founded by Kenichi Koyanagi and Ichiro Ishikawa.

JUSE brought leaders and experts from all of Japan's major industries together to share best practices. It was directed to "revitalize Japan's economy and [eliminate] waste by improving quality".

The objective of the JUSE is to "promote systematic studies needed for the advancement of science and technology, whereupon to contribute to the development of culture and industry."

JUSE invited W. Edwards Deming to lecture them on the use of statistical quality control. He arrived in June 1950 and he returned again on five occasions as consultant to Japanese industry. The following year the JUSE established the Deming Prize, which was originally awarded to individuals who had contributed to the theory and application of quality control, and to corporations which had obtained outstanding results in the application of quality control.

Joseph Juran was also invited to give lectures to the JUSE in 1954 and 1960. His lectures centered on managing quality and in making quality a business strategy.

Deming Prize

The late Dr. W. E. Deming (1900 - 1993), one of the foremost experts of quality control in the United States, was invited to Japan by the Union of Japanese Scientists and Engineers (JUSE) on July 15, 1950.

Upon his visit, Dr. Deming lectured at "Eight-Day Course on Quality Control" at the Auditorium of the Japan Medical Association in Kanda-Surugadai, Tokyo. This was followed by Dr. Deming's "One-Day Course on Quality Control for Top Management," held in Hakone. Through these seminars, Dr. Deming taught the basics of statistical quality control plainly and thoroughly to executives, managers, engineers and researchers of Japanese industry. His teachings made a deep impression on the participants' mind and provided great impetus to quality control in Japan, which was in its infancy.

The transcript of the eight-day course, "Dr. Deming's Lectures on Statistical Control of Quality," was compiled from stenographic records and distributed for a charge. Dr. Deming donated his royalties to JUSE. In appreciation of Dr. Deming's generosity, the late Mr. Kenichi Koyanagi, managing director of JUSE,

proposed using it to fund a prize to commemorate Dr. Deming's contribution and friendship in a lasting way and to promote the continued development of quality control in Japan. Upon receiving the proposal, the JUSE's board of directors unanimously made a resolution to establish the Deming Prize.

Later, the Japanese translation of Dr. Deming's book Some Theory of Sampling was published. Dr. Deming further contributed to the fund using the royalties from his book. Since then, the Deming Prize has grown considerably, and today JUSE carries the overall administrative costs for the prize.

Dr. W. E. Deming delivering lecture at "Eight-Day Course on Quality Control" took place at the Auditorium of the Japan Medical Association.

Dr. W. E. Deming and Mr. Kenichi Koyanagi, Managing Director of JUSE

Deming Medal

Cover page shows the Deming Medal with Dr. Deming's side face image and his word "THE RIGHT QUALITY & UNIFORMITY ARE FOUNDATIONS OF COMMERCE, PROSPERITY & PEACE" engraved on it designed by late Yoji Yamawaki, former professor of the Tokyo National University of Fine Arts and Music. The medal is awarded to the Deming Prize Winner.

The W. Edwards Deming Institute

https://deming.org/

There will be joy in work, joy in learning. Anyone that enjoys his work is a pleasure to work with. Everyone will win; no losers.

W. Edwards Deming, The New Economics for Industry, Government, Education

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AIM

Enriching society through the Deming philosophy.

VISION

At The Deming Institute, we honor the legacy of Dr. Deming by bringing his teachings to life today and for the future. We're introducing his teachings to a younger generation, developing new Deming leaders, and ensuring the transition of knowledge from Dr. Deming's trusted colleagues. Through new programs, learning events, and digital resources we will increase the adoption of The Deming System of Profound Knowledge® in our schools and in small to mid-sized businesses and organizations. We will strengthen nonprofits that are as committed as we are to making people's lives better. Our vision is for the System of Profound Knowledge® to be the standard lens people use to understand and improve the world.

Indeed, joy flourishes when leaders drive out fear and the forces of destruction from an organization. When cooperation supplants competition, and people know what their jobs are and how they contribute to the system. When it's understood that people learn in different ways—reading, listening, and watching—and that learning is a lifelong endeavor. When these and other teachings and practices of The Deming System of Profound Knowledge® are embraced and applied, not only do organizations improve and thrive, but people experience a greater sense of purpose, fulfillment, and joy.

VALUES

- We believe in the power of Dr. Deming's vision of a better world and strive, with joy, to carry on his work.
- We are dedicated to the Deming philosophy and the belief that by working together, with humility, we can make a difference in the quality of life for everyone.
- We have high moral and ethical standards, professional and personal integrity, and a commitment to lifelong learning.
- We believe in working together with a spirit of cooperation, collaboration, respect, and support.
- We are a diverse and inclusive community.

Please visit the above Web Link to learn MORE!

Deming's 7 Deadly Diseases of Management

As a teacher and consultant, the late Dr. W. Edwards Deming devoted his life to developing and teaching a new philosophy that would lead to the transformation of Western management. He always taught, however, that the first step to improving a system is to find out what's wrong with the current system. Deming railed against certain deadly diseases that are inherent in American management. "For the transformation to occur," he said, "these diseases must be recognized and cured." Notice how the deadly diseases, listed below, interact with each other. Sometimes, a symptom of one disease will be one of the other six diseases!

[01] Lack of constancy of purpose to plan product (good or service) that will have a market and keep the organization in business, and provide jobs. As long as the focus is on short term thinking, management will fail to plan adequately. Without good long term planning, worker efforts will be irrelevant: Total Quality Management (TQM) cannot be a fad, as long-term forward progress should always be the ultimate goal for any organization;

[02] Emphasis on short-term profits: short-term thinking (just the opposite from constancy of purpose to stay in business), fed by fear of unfriendly takeover, and by push from bankers and owners for dividends. Short-term thinking - the opposite of constancy of purpose - in order to stay in business, fed by fear of the push from bankers and owners for dividends. Boosting short-term profits is easier, at it typically involves the cutting of any expense related to the long term: training, quality assurance management, maintenance, etc.;

[03] Evaluation of performance, merit rating, or annual review. Management by objective, on a go / no-go basis, without a method for accomplishment of the objective, is the same thing as management by fear. The essential problem with merit systems is that they reward results rather than process improvement - results will almost always have a lot of system luck mixed in. Some managers want to reward people who cooperate more or who seem to have better attitudes, and will insist that they can recognize the people who are most cooperative and have the highest work ethic. Instead, managers should understand that the best way to develop cooperation is by focusing on the nature of work environment, not monetary rewards;

[04] Mobility of management; job hopping. The simplest and yet one of the most deadly of quality systems management diseases, management mobility (or when top

management changes organizations every three or four years) means continuous improvement efforts will be broken and disjointed as new leaders come on board. With changes in leadership, there is a change in management philosophy. Managers who have an eye on the next promotion want results - now - to gain the next rung on the ladder;

[05] Management by use only of visible figures, with little or no consideration of figures that are unknown or unknowable. Some facts are simply unknowable. Knowing this, Deming insisted that leaders must still make decisions and manage a situation;

[06] Excessive medical costs. For the economy as a whole, health care as a percentage of overall expenditures has steadily risen for decades, which gradually pushes numerous businesses into a state of crisis. Potentially the only remedy for this disease would be a political system attempting to reform health care; and

[07] Excessive costs of liability, swelled by lawyers that work on contingency fees. Deming blamed America's lawyers in part for the problems of American business. The United States has more lawyers per capita than any other country in the world, and they spend much of their professional time finding people to sue. Like health care costs in sixth item, Deming believed the remedy to this disease will probably have to come from the government.

Each of these Seven Deadly Diseases can destroy a company's ability to focus on quality and to conform to the requirements and needs established by the customer. These Diseases also reflect on the need to focus on Value on Investment (VOI) as an umbrella over Return on Investment (ROI). We must maximize what the customer gets back for what they put into the delivery of service. The Diseases also reflect Dr. Deming's belief that strong leadership and well-built processes are the most effective and efficient way of achieving quality.

When we put long-term thinking and focus on value before short-term thinking and returns then we can achieve quality and increase customer satisfaction. When customers are satisfied with your delivery of services then they will continue to seek you out as a provider. When you focus strictly on the bottom line, you will have a tendency to forget that the customer is really the key to your success. If no customers desire your products or services or see no value in them, they will be unhappy. Then your customers will seek other mechanisms (your competitors) to fulfil their needs.

As much as anything (and perhaps more) ITSM is about changing our thinking and our behaviour to focus on the needs of customers, the value they seek and the quality needed to deliver on their requirements. The Seven Deadly Diseases show what happens when we take our eyes off the customer and focus on ourselves or strictly on the bottom line.

For MORE information, kindly visit these Web Pages

01] https://deming.org/explore/seven-deadly-diseases/

02] https://beyondcommandandcontrol.com/library/systems-principles/demings-seven-deadly-diseases/

03] https://www.linkedin.com/pulse/seven-deadly-diseases-management-ivan-luizio-magalh%C3%A3es

04] https://sites.ualberta.ca/~yreshef/orga432/deadly.htm

05] https://www.itsmprofessor.net/2010/03/demings-7-deadly-quality-diseases.html

06] http://www.jimleonardpi.com/blog/managements-seven-deadly-diseases/

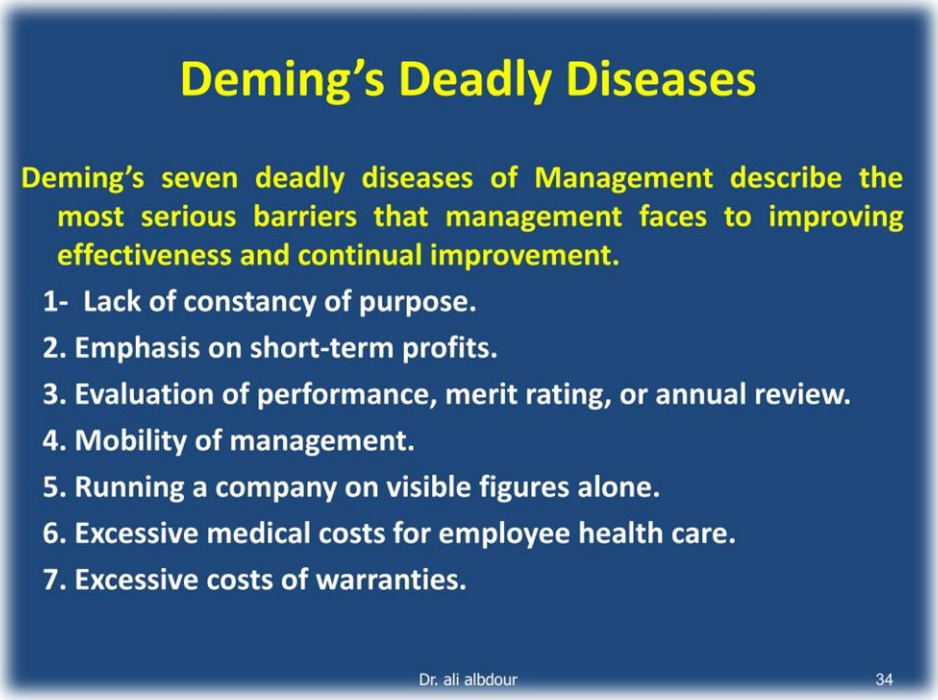
07] https://hrzone.com/glossary/what-are-the-seven-deadly-diseases-of-management/

08] https://leading-resources.com/wp-content/uploads/2020/02/The-Seven-Deadly-Diseases.pdf

09] https://www.yourarticlelibrary.com/total-quality-management/demings-deadly-diseases-or-obstacles-in-tqm-total-quality-management/26175

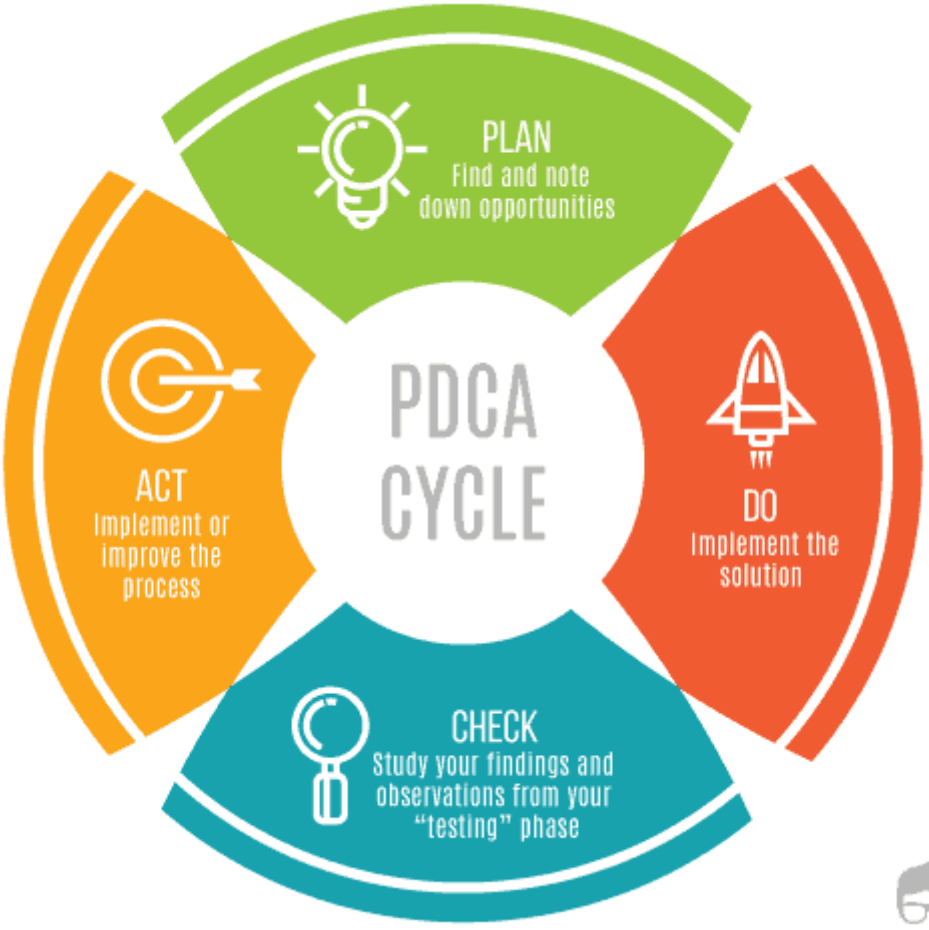
10] https://www.youtube.com/watch?v=AflkewKy9co [Video]

11] https://www.slideshare.net/slideshow/seven-deadly-diseases/11754003 **[PPT]**


Deming's Deadly Diseases
Deming's seven deadly diseases of Management describe the most serious barriers that management faces to improving effectiveness and continual improvement.
1- Lack of constancy of purpose.
2. Emphasis on short-term profits.
3. Evaluation of performance, merit rating, or annual review.
4. Mobility of management.
5. Running a company on visible figures alone.
6. Excessive medical costs for employee health care.
7. Excessive costs of warranties.
Dr. ali albdour
34

PDCA Cycle

[The Deming Wheel]



W. Edwards Deming in the 1950's proposed that business processes should be analyzed and measured to identify sources of variations that cause products to deviate from customer requirements. He recommended that business processes be placed in a continuous feedback loop so that managers can identify and change the parts of the process that need improvements. As a teacher, Deming created a (rather oversimplified) diagram to illustrate this continuous process, commonly known as the PDCA cycle for Plan, Do, Check, Act:

PLAN: Design or revise business process components to improve results

DO: Implement the plan and measure its performance

CHECK: Assess the measurements and report the results to decision makers

ACT: Decide on changes needed to improve the process

[A] Deming's PDCA cycle can be illustrated as follows:

What are the stages of the PDCA cycle?

The PDCA cycle includes this sequence of stages that must be followed without omitting any:

P: Plan

The first step when trying to optimize a process and improve a product or service is to plan. The company's strategic goals, as well as the customer's expectations, must be aligned in order to fulfill the next stages.

First, it's necessary to conduct a diagnosis to identify existing problems, define priorities of what needs to be improved, or even detect new opportunities.

After defining the goal, you must break it down into realistic and tangible objectives. At this point, it's important to survey data and information to define the scope of work.

Once the team gets together, it's time to put pen to paper: create an action plan with the tasks that must be performed in order to achieve objectives. Define deadlines, a schedule, and the people responsible.

You must also define key performance indicators (KPIs), which are metrics to be analyzed in the next stage.

D: Do

Now it's time to put your plan in action. It's important for the team to receive particular training to execute what's laid out in the plan.

During execution, you should also try to collect data so you can monitor processes and measure results. Record them whether they're positive or negative.

C: Check

Now, analyze the results. In this stage, having objective and quantitative parameters are needed in order to properly assess process improvement and quality standards and to compare them to previous cycles.

In this stage, you can identify problems or failures in the process, which can be adjusted later.

A: Act

As well, the "A" in PDCA also stands for "adjust", and it represents the actions to be implemented to correct the failures detected in the previous stage. At this point, you can point out solutions to problems and then amend planning according to the new results.

In this stage, there are two different outcomes:

- If the expected result was achieved, it can serve as a reference for other processes and departments, or other units of the company, for example.
- If the result was below expectations, it should be analyzed in order to find new solutions.

It's important to mention that the market is very dynamic, technological innovations are created all the time, and it's difficult to consider a pattern that worked to be definitive. Even if a strategy worked, it's likely it can be improved going through the PDCA cycle again.

[B] What are the objectives of PDCA?

The objective of PDCA is to simplify management routines and facilitate the implementation of positive changes. To do this, it works based on some key aspects:

Problem-solving

The PDCA cycle can be applied to solve any type of problem in a company, not only in businesses but also in personal contexts.

Its four-stage execution model allows for planning a solution that is continuously checked, minimizing the impacts of the initial problem.

Decision-making

This working methodology is based on concrete information and continuous data checking, which improves decision-making. Thus, business directions are defined based on comprehensive and relevant analyses.

Moreover, managers are always alert to potential problems, taking preventive action.

Innovation

PDCA facilitates the organization of new ideas, allowing for the implementation of new and innovative solutions to everyday problems.

Flexibility and agility

Through PDCA, companies can adapt more quickly to the constant changes in the market, developing a more flexible and dynamic profile - essential for contemporary businesses.

Quality improvement

PDCA is directly related to Quality Management, promoting continuous improvement in all organization processes.

When it should be used?

This method can be used in any process to put your company always in a cycle of continuous improvement in order to implement standards and increase efficiency.

The more you repeat the cycle, the more you increase gains in quality and improve customer service, increasing your advantage.

You can use PDCA for:

Managing routines: standardize your company's day-to-day processes and define a quality level for activities.

Managing improvements: ensures a certain quality level, and always seeks to adapt to external instabilities and find ways to stand out in the market.

Routine Management

PDCA helps standardize the day-to-day processes of the company and defines a quality standard for activities. Through the four stages of the methodology, it becomes simpler to organize all activities, always with high quality.

This way, the daily operations become more productive, there is more predictability about the results, with goals better adjusted to the company's reality. Furthermore, it becomes easier to identify bottlenecks and propose optimizations.

Continuous Improvement

PDCA sets this quality standard but always aims for a new adaptation to external instabilities, finding ways to differentiate and stand out in the market. Thus, the company works towards continuous improvement.

Inventory Management

Constant market changes demand companies to have a more robust and diversified inventory - which also requires more complex and organized management.

With the PDCA methodology, it is possible to optimize situations like restocking and product turnover based on sales, optimizing the entire organization's logistics.

Agribusiness

The agribusiness sector has benefited from new technologies, but alone, they do not guarantee the excellence that this market needs.

Through PDCA, it is possible to plan operations, purchase inputs, hire labor, and set production goals. This planning must be executed efficiently, with close monitoring by a manager.

In the end, it is essential to check the quality of the crop and implement new actions if necessary, ensuring higher quality in agricultural production and the products that reach consumers' plates.

Studies

And it's not only in the corporate context that you can see the results of this methodology. PDCA can also be applied to studies, being a tool to improve routines.

Establish your study goals and study methodology, prioritizing which subjects need to be studied and what the initial, intermediate, and specialized contents are.

Study the defined subjects, put the plan into practice, and record what you are learning. Remember to analyze the results through tests and continuously improve this routine.

[C] The best practices when implementing a PDCA cycle.

To achieve better results with the PDCA cycle in the company, it is important to follow some best practices in implementing this method.

Employee Training

Promote the training of teams so that everyone is aligned with the new way of working. This is a change in the organizational culture and should be part of regular communications and the way the company operates as a whole.

Recurring Use of the Cycle

PDCA should be part of the company's routine and used as a recurring method of improvement. As mentioned earlier, the method is not linear but circular and should be in constant use to achieve the expected results.

Data Collection

Collect results at each cycle and assess the company's performance. From this analysis, it is possible to propose new points of organization and innovation.

PDCA: Examples

To better clarify the meaning of PDCA, we can show a simple example of a problem solved through PDCA. The development of a new shampoo bottle.

After learning that customers aren't satisfied with the packaging because part of the product is wasted, the cosmetic company could:

Bring together the product development team, R&D, and the information gathered by the customer service team. After that, plan a new package that meets customer expectations and reduces waste.

With a defined action plan having deadlines, goals, and people in charge, you can start the actual production of the packaging.

With data collected at the factory, such as raw material costs, production time, and more, the team oversees the process and assesses results. At this point, the new package is released and new customer feedback is collected.

With all the information gathered, performance is analyzed and new solutions are suggested for more improvements, starting the next cycle.

Sectors where the methodology can be applied

Due to its focus on continuous improvement and problem-solving, the PDCA (Plan-Do-Check-Act) cycle is a versatile tool that can be adapted to different contexts. Discover below the main sectors where it can be applied:

Manufacturing Industry: To improve production efficiency, reduce defects, optimize the supply chain, and enhance product quality.

Services: In sectors such as banking, hospitals, restaurants, and insurance companies, PDCA can be applied to enhance customer satisfaction, optimize internal processes, and reduce waiting times.

Healthcare: PDCA can be used to improve the quality of healthcare, reduce medical errors, optimize workflows, and enhance clinical outcomes.

Education: It can be applied to improve teaching methods, assess and adjust the curriculum, and enhance students' academic performance.

Information Technology: PDCA can be utilized to improve software development processes, project management, and operational efficiency of information systems.

With that said, let's explore real examples of companies using the PDCA cycle.

Examples of companies using the PDCA cycle

PDCA is a method proven to be effective in any industry, as demonstrated by real success stories from companies like Nike, Toyota, Nestlé, among others. Here are two real examples of implementation:

Nike

Nike implemented lean methodologies to optimize its manufacturing process. However, to improve the poor working conditions, they adopted the PDCA Cycle. This technique empowered Nike's employees, partners, and customers.

Nike improved working conditions, eliminated waste, and employed value-oriented managers. This commitment to lean methods and continuous improvement helped Nike double its size, going from $100 billion in 2015 to over $200 billion in 2021.

Nestlé

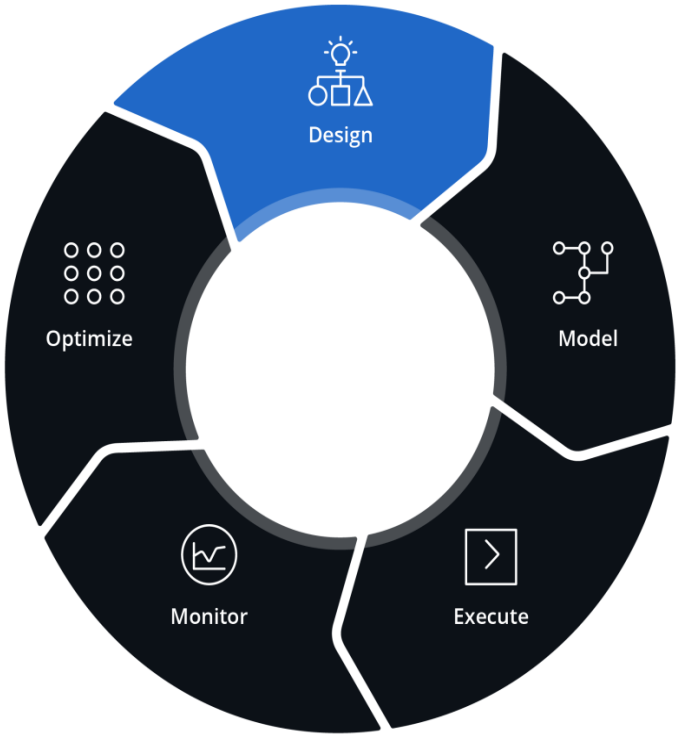
Nestlé aimed to reduce waste by implementing lean methodologies. They adopted the Kaizen method to ensure that continuous improvement is the responsibility of everyone and used the PDCA cycle to provide a detailed framework and increase accountability.

Nestlé Waters used techniques such as value stream mapping to illustrate the flow of materials and information needed to deliver finished products to consumers. This process helped new bottling plants increase their efficiency.

Technology and PDCA

Already in use for many years, the PDCA cycle can be considered a simplification of several other methodologies that aim for continuous improvement. This is the case of the BPM continuous improvement cycle.

A company focused on **Business Process Management** is constantly and repeatedly planning, mapping, executing, documenting, monitoring, and refining its processes. We could say that it's like the PDCA method, but more complex and more detailed.



With a BPM system (**BPMS**), it's possible to automate these stages and apply the PDCA method throughout the entire chain of the company, optimizing end-to-end processes.

Examples of PDCA in conjunction with technology include an action plan to reduce a company's use of paper:

In this case, we analyze the problem and, as an action plan, we implement an ECM (Content Management) system and a process is prioritized to be used as a start.

After defining the need for an ECM system, the implementation stage of this system begins.

Once implemented, the processes which previously used paper can be performed on the system, now generating data in the system, such as a sales funnel process that generates a signed contract. This contract would normally be stored in a physical folder, but in this system it will be stored automatically.

At the end of the cycle, the results obtained by implementing the system are analyzed, new opportunities in other processes are observed, as well as improvements that could be applied to this process.

PDCA RESOURCES

You can also search articles, case studies, and publications for PDCA resources.

Articles

A Systematic View (Lean & Six Sigma Review) Modular Kaizen is an improvement approach that integrates quality techniques into the busy schedule of everyday activities. The Modular Kaizen approach is complementary to the PDCA and DMAIC models of quality improvement, as described in this article.

A Lean Approach to Promoting Employee Suggestions (Quality Progress) This simple, low-tech approach maintains the visual process and easily communicates where each suggestion is in the PDCA process without the need for email, databases or other technological means.

Circling Back (Quality Progress) There still seems to be much confusion surrounding W. Edwards Deming's plan-do-study-act (PDSA) cycle. This article examines the three main misunderstandings surrounding PDSA and PDCA cycles.

The Benefits of PDCA (Quality Progress) The brief history of PDCA and an example of PDCA in action help establish the use of this cycle for continuous process improvement.

Tell Me About It (Quality Progress) Based on the PDSA cycle, this article introduces the plan-do-study-act-export (PDSA-X) cycle, which supports the collaborative pursuit of excellence across organizational boundaries, geography and time.

Case Studies

Stewardship and Sustainability: Serigraph's Journey to ISO 14001 (Journal for Quality and Participation) By utilizing ISO 14001 and Lean Six Sigma, including the PDCA cycle, as templates for continuous environmental improvement, a variety of actions are taken to become a socially responsible organization (SRO) and minimize Serigraph Inc.'s environmental footprint

Message Received (Six Sigma Forum Magazine) The science of experimental design allows you to project the impact of many factors by testing a few of them. If the project follows the DMAIC process, you can make some adjustments to the PDCA outline, which is the approach taken by Deemsys Inc., a training organization that wanted to better understand the response rate of its email marketing efforts.

Visit the following Web Pages for ADDITIONAL INFO

[01] https://deming.org/explore/pdsa/

[02] https://www.lean.org/lexicon-terms/pdca/

[03] https://www.feedough.com/deming-cycle-pdca-cycle/

[04] https://www.isixsigma.com/dictionary/deming-cycle-pdca/

[05] https://www.sydle.com/blog/pdca-cycle-61ba2a15876cf6271d556be9

[06] https://balancedscorecard.org/bsc-basics/articles-videos/the-deming-cycle/

[07] https://www.mindtools.com/as2l5i1/pdca-plan-do-check-act

[08] https://asq.org/quality-resources/pdca-cycle

[09] https://www.wevalgo.com/know-how/opex-assessment-tools/problem-solving/pdca-cycle

[10] https://www.youtube.com/watch?v=bO3GpAjVvD8 [Video]

[11] https://lemonlearning.com/blog/4-stages-of-the-deming-wheel

[12] https://blog.kainexus.com/improvement-disciplines/lean/pdsa/the-development-use-of-the-pdsa-cycle-of-improvement

[13] https://blog.kainexus.com/improvement-disciplines/lean/pdsa/the-development-use-of-the-pdsa-cycle-of-improvement

[14] https://ceopedia.org/index.php/Deming_wheel

Memorial Service of WED

Attended by:
Junji NOGUCHI
Managing Director
JUSE - Japan

' *In Memoriam: Dr W. Edwards Deming* '

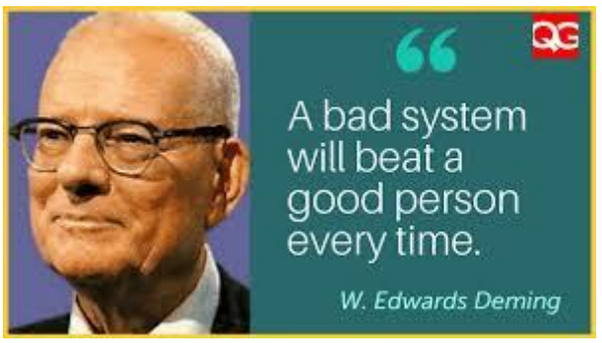
YouTube

https://www.youtube.com/watch?v=arfHNfsjZs4

Remembering Dr. W Edwards Deming (14/10/1900-20/12/1993)
with Balaji S Reddie.

About the Guest: Having tutored under Prof. Henry R. Neave (Retired W. Edwards Deming Professor of Leadership and Management at the Nottingham Trent University, UK) and Mr. R.V. Ramachandran (ex CM&MD KCL), Balaji S Reddie developed an interest in the field of Managing for Quality which goes under very fancy names today. However, after spending 20 years of his life learning about the subject he feels he has only scratched the surface so far. Things that interest him are the works of the pioneers Dr. Deming and Dr. Juran. Recently, his contributions have been featured in an active learning course titled "12 Days to Deming" created by Henry R. Neave - Retired W. Edwards Deming Professor of Management and Leadership from the Nottingham Trent University, England and ASQ Deming Medal Recipient for the year 2001.

About the Host: Dr. M (Dr. Mohan Parmeswaran), has served 26 years in manufacturing and process industries; in private as well as public sector; with products ranging from manufacturing of fighter aircrafts in aviation industry to power generation industry to consumables goods industry to pharmaceuticals industry. He was a director in a pharmaceutical company with German collaborators before he founded his own consultancy 'WARANS' and took up consultancy in the field of Continuous Improvement Processes. Warans supports organizations in implementation and sustenance of LMS, TPM, TQM initiatives.



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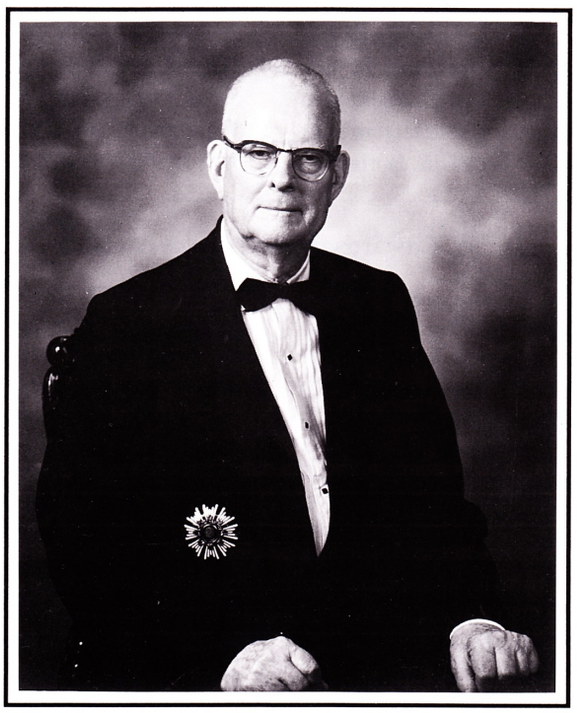
ATTENDING THE MEMORIAL SERVICE OF DR. DEMING

from *"ENGINEERS"*, No. 543 (January 1994) JUSE

Junji NOGUCHI
Managing Director
Union of Japanese Scientists and Engineers

It was Wednesday, December 29, 1993, and a powdery snow again was falling on Washington, DC. It blew up from the street and blurred our vision. There were few cars and even fewer pedestrians, and the scene had a near-colorless aspect of monochrome. With the temperature at 4°C below zero and the snowfall having already reached 6 inches, the preceding night's weather forecast had it that the airport could possibly close down.

Dr. Deming's second daughter Diana, who had visited Japan several times and in later years always remained at his side, telephoned me last evening. "With the snow like this, I can't tell how many will be able to attend the memorial service," she said. "The church can hold only 300 at most, so I think you ought to come early," She went on to say that the church would open



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at 11:45 in the morning, and that the memorial service, scheduled to begin at one in the afternoon, would last an hour. So I left the hotel at 11:00 a.m. with Mr. Kozo Koura, who had traveled with me from Japan.

St. Paul's Church stood among office buildings on the street near Washington Circle to the northwest of the White House. Diana greeted us in the waiting room with her husband, and 30 to 40 mourners had already arrived. My old aquaintance Dr. "Tribus," formerly a professor at MIT, had flown to Washington from the West Coast a day earlier, although his flight had been delayed by three hours pending receipt of landing permission. The noted producer couple, who had made it possible for Dr. Deming to become known, were there from Colorado, their health resort, and with a familiar air they quipped, "We can't let a little snow beat us." Also present was Mr. Miyano, the resident representative in New York of Takenaka Komuten Co., Ltd., whose flight from the Empire State had arrived on time. With so many familiar faces at the funeral, I hoped Diana's anxiety would prove to be unnecessary.

A fight to the finish

Dr. Deming's Four Day Course, which started December 7 at Universal City on the outskirts of Los Angeles, marked his 30th and the last instruction as slated for 1993. Toward the end he would lecture with an oxygen bomb attached to his wheelchair. During his

final Four Day Course he suffered a violent coughing spasm, which triggered the concern of those in attendance. But he rallied and, quieting them with reassuring gestures, resumed his talk. Earlier in the year, while lecturing in Rochester, Dr. Deming collapsed at the lectern and was rushed to the hospital in an ambulance. But reportedly he recovered, and the following morning he returned to the seminar and continued his instruction. His final course ended December 10. Normally he would fly back to Washington soon after its completion, but this time he hesitated. Two days later, December 12, he returned to Washington. At his home a bed was specially prepared in the first floor sitting room, and two nurses had been assigned to care for him. I understand that he passed away in his sleep at 3:00

Dr. W. Edwards Deming –Personal history–

Dr. W. Edwards Deming was born on October 14, 1900 in Sioux City, Iowa. He worked his way through the Electrical Engineering College of the University of Wyoming. He received masters degrees in mathematics and physics from the University of Colorado in 1923, and in 1928 he obtained his Ph. D. at Yale.

In 1928 he moved to Washington, DC, and joined the US Department of Agriculture.

In 1939 Dr. Deming was invited by the National Bureau of Census to become the officer in charge of the census plan based on a sampling method. While at the US Department of Agriculture he met Dr. W. A. Shewhart of the Bell Research Laboratory, and from him Dr. Deming learned the quality control theory. Later, when studying at the University of London, Dr. Deming learned the statistics theory from Prof. R. A. Fisher. During World War II Dr. Deming traveled through the United States giving instruction in statistical quality control to approximately 30,000 persons, among whom were engineers employed by armaments industries and government procurement officers.

In 1946 Dr. Deming became an independent statistics consultant, at the same time assuming a professorship in the graduate school of the University of New York. In December of the same year he came to Japan for the first time as a member of the US Rice Economic Mission.

1950 found Dr. Deming visiting Japan again at the request of Union of Japanese Scientists and Engineers to give a series of lectures on statistical quality control. After that he traveled to Japan all of nineteen times, with his final appearance here being in 1991.

From 1980 on Dr. Deming personally led the "Four Day Course," which was given more than thirty times a year and attracted a total of more than 100,000 participants. During his career he actively provided guidance to such major corporations as Ford, AT&T and Minneapolis Honeywell. It is said that there was no company listed in "The Fortune 500" that had not invited Dr. Deming as an instructor.

Dr. Deming's second daughter resides in California, and his third daughter lives in Maryland. He has five grandchildren and three great-grandchildren.

a.m. on December 20. Certain media publications reported the cause of his death as cancer, but Diana told me it was natural cause. In his later years Dr. Deming had suffered from phlebitis and wore a hearing aid. The old general never stopped fighting through all of 93 years. With him it was literally a fight to the finish. Relief that old general could take was his final rest.

The church opened promptly at 11:45 a.m. On entering we saw more than ten huge stained glass windows depicting various religious figures, among them a bishop clad in a red cassock against a bright blue background. With these forming part of the setting, a Gothic style altar rose at the fore, and to the left a representation of Christ. A choir had assembled on both sides of about ten steps leading to the altar, and behind them towered a pipe organ describing a reverse parabola above their heads. The church became getting crowded and twice we were asked to sit together more closely. Extra chairs had been arranged along the aisles, and at the rear of the center aisle a TV camera was set up so as to relay the proceedings to another room. A twelve page funeral program was distributed among the congregation, and it contained words unfamiliar to "pagans" like us. It may not be proper to say they were all hymns, but there were ten or so chants bearing the indications "solo," "sung by the choir" or "sung by all." Worth mentioning is a note that stated three of the hymns had been composed by Dr. W. Edwards Deming.

His home in Washington

Only a few knew, but it had been Dr. Deming's lifelong ambition to compose music. In January 1993 he conducted an orchestra in Washington that gave the premier performance of four of his religious compositions, an event reported in the Japanese media. In the sitting room on the first floor of his home in Butterworth stood a small grand piano in excellent condition. Prior to his death Dr. Deming's musical scores would be left on the piano. These religious compositions afforded an insight to better understanding of Dr. Deming's personality, a man who loved and appreciated Japanese Noh plays.

Diana was not in, but I asked her husband if I could see Dr. Deming's basement study. Doubtless more than a thousand Japanese had trod the steps leading to it. On one side of the stairway a rail had been installed to allow ascent and descent by a mobile chair, the system specially arranged for Dr. Deming, who had weak legs. Having lost its master, the study looked deserted. His collection of books had grown and many of the volumes were stacked on the floor. The Japanese dolls and vases that once occupied a considerable amount of shelf space had given way to his books. A number of certificates of commendation had been propped against a bookstand, awards more worthy of being framed and hung on a wall. Many framed photographs were placed around his study, chiefly snapshots of the doctor with his family or friends. On one wall hung a calendar of cloth; he used to have them sent from JUSE every year and personally specified their design and size. The 1994 edition, showing Kyoto's Golden Pavilion, or Kinkakuji, had been mailed only three weeks earlier. There was a blackboard, and the doctor had chalked on it the name of his newly born third great-grandchild. I recalled that in 1965 Prof. Kaoru Ishikawa had visited the study and was actively discussing with Dr. A. J. Duncan, while using the same blackboard, how to prove the "Amida-lottery" theory.

Dr. Deming had been present, listening attentively to their debate. Now all three doctors are gone.

At one in the afternoon the majestic sound of the pipe organ solemnly permeated the crowded church to announce the start of Dr. Deming's memorial service. A priest recited from religious sciptures, his intonation bringing to mind a bird flying through a spring sky. The priest would recite and congregation would respond in unison. After repeating this exchange the priest began his retrospect of Dr. Deming. He opened with the statement that,"Dr. Deming's myriad achievements cannot be described within such a short span of time." He capsuled Dr. Deming's early years, scholastic triumphs, assorted accomplishments, and how he had been decorated by Emperor Hirohito and received the National Medal of Technology from the nation's President. During his presentation the priest made the congregation laugh four times. One anecdote went, "Dr. Deming often asked me questions at church, but my answers seldom convinced him of anyting." Another was, "Whenever I visited him when he was ill, he would see me only after he was fully attired." Indeed, Dr. Deming lived as a well-mannered person, but, if I may say so, with a touch of clumsiness.

US media coverage

Dr. Deming was a devout Catholic. Even when staying in Japan he never missed Sunday mass. Most of his income derived from his Four Day Course, and the majority of it he donated to a neighborhood church and to medical facilities. A gentleman like that sometimes will display a certain amount of obstinacy and unso-

(With past Mr. Konosuke Matsushita right in front raw when visiting his company November, 1965.)

cialibility in his words and actions, suggesting to us the male version of a grimalkin. American newspapers in their obituaries assigned Dr. Deming titles like "Godfather of Quality, "Management Theorist," "American Business Critic," "Influential Pioneer or Industrial Quality" and so on. While on one had complimenting him with such descriptions as, "He had delivered a powerful shock to international corporate management with his revolutionary concepts" and, "He can be equated with those who contributed to the Industrial Revolution," on the other they rapped him with expressions like "Stubborn," "Perverse" and a "Self-assured critic." But an observation common among all the periodicals was, "He stood tall as the man who helped reconstruct Japan after the war, but as someone largely ignored in America, his own country, for a very long time." When Dr. Deming was asked, "how he would like to be remembered in his native land, replied, I probably won't even be remembered.' He paused and added, "Well may be... as someone who spent his life trying to keep America from committing suicide." These statements were quoted in many newspapers.

The long queue of parishoners waiting to receive Holy Communion gradually diminished, and by 2:30 the service drew to a close. This was followed by a tea party with Dr. Deming's family, which took place in another room and was attended by Mrs. Mary Walton, author of "The Deming Management Method," Mrs. Nancy Mann, who wrote "The Keys to Excellence" and visited Japan twice, and Miss Barbara Laughton, who accompanied Dr. Deming on the occasion of his final trip to Japan (his liking for beautiful women was well known). Irrespective of time and place, there was always a lovely lady working as his secretary, either a scholar or a journalist. Dr. Deming's first wife as well as Mrs. Laura Deming, who passed away in 1986, were academicians. Also present were Mr. O. R. Moan from General Motors, who had been Dr. Deming's favorite pupil; Prof. Yoshida from California State University, Dr. Deming's immediate disciple and the first among his students to obtain a doctorate; and Prof. Milton Chen of San Diego University, the man who translated Prof. Tatsuo Ikezawa's "Effective TQC." I spoke with quite a few of the guests and often heard words to the effect that they had visited JUSE in such and such a year, and had met me at one place or another during this or that year. Mr. and Mrs. Mason of QC-M Productions the couple from Colorado I mentioned earlier, asked for our cooperation, saying, "Although we've lost Dr. Deming, we'd like to continue our TV show introducing Japanese enterprises."

Then all at once I felt hungry, having eaten nothing since breakfast, and left the church. It was still snowing and the leaden sky had grown darker.

A man of "punctuations"

The well-ordered life of Dr. Deming was also well "punctuated," and it made us feel it was not so much

chance as destiny. He was born in 1900. He started sowing the seeds of SQC in Japan in 1950 and was awarded The Order of the Sacred Treasure, Gold and Silver Star by the Japanese Government in 1960. After that he remained in obscurity for twenty years. In 1980 he got into the spotlight in his home country by appearing on the TV program "If Japan Can, Why Can't We?" That year was the clearest punctuation of his life. I met him on a number of occasions while he was biding his time, and failed to give me the impression of a man lost to obscurity. But his sudden burst of energy after 1980 was amazing. Instead of simply criticizing corporate management, he undertook a plan of personally instructing representatives of the industrial realm and giving guidance to enterprises. His Four Day Course was held all of thirty times a year throughout the United States, with an aggregate of over 100,000 persons having studied under him until the time of his passing. It is difficult to imagine this as the conduct of a man who, after having lived in obscurity for twenty years, at age eighty suddenly launched an intensified teaching program that continued under his personal tutelage until only ten days before his demise. What motivated this sudden spurt of energy so poweful that it might make even a demon turn tail and run? Possibly it was his "spirit of defiance" that had been nurtured during his two decades in obscurity, at least that's my analysis. As the man who "spent his life trying to keep America from committing suicide" he carried out his mission precisely according to his intention. I wish he could have lived an even century so he could add another punctuation ending in a zero. Why did he have to bow out so abruptly in only 1993? Looking back over Dr. Deming's long career, I had to admit that I had become more or less of a fatalist, and I found a new punctuation in December of 1993. It came in the form of a report on the revival of American quality as seen in semiconductors and automobiles. The US economy has improved, while Japan's economical conditions remain at a disadvantage. Maybe Dr. Deming was satisfied with the situation... or was it that he could not tolerate Japan's decline. Or perhaps the Great Architect ruled that Dr. Deming need no longer exert efforts, something he most likely would have continued doing, and instead recalled him to the realm of discarnates for a well-earned vacation, thus adding the final punctuation mark to the life of a great man.

Having accepted a dinner invitation, Mr. Koura and I met Diana, her husband, their son and his fiancee in a hotel lobby, from where we adjourned to fine restaurant. The White House stood just across the street, and the restaurant walls were lined with pictures of Presidents and senators, each of whom were said to have had peculiar mannerisms or eccentricities. So indeed was the case with Dr. Deming. His actions sometimes would prove to be embarrassing for those closely associated with him, and occasionally make him a laughingstock in the eyes of casual observers. For instance, In Japan and Korea, TV caster asked Dr. Deming "What do you think about TQC in our country?" He replied, "what's that, I don't know." Both interviews were not on air. He ate all kinds of Japanese food. In particular he liked sukiyaki, and only two helpings would never satisfy his big appetite. We mentioned anecdotes like this while dining. Mr. Cahill, Diana's husband, was a lawyer and, bowing to his wife's wishes, they were planning to move from Los Angeles to Dr. Deming's house in Washington. She looked exhausted, but her deep sorrow did not show through. She told us she had been with Dr. Deming almost continuously over the past year.

Through a window we noticed that it had stopped snowing. The Washington Monument soared before our eyes, bathed in golden light and piercing the night sky. Somehow the fact of Dr. Deming overlapped the scene as the image of the man who "spent his life" and finally succeeded in stopping "America from committing suicide." ★

* * * * *

THE W. EDWARDS DEMING INSTITUTE

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We are pleased to announce that on 22 November 1993 our father, Dr. W. Edwards Deming, established The W. Edwards Deming Institute. The aim of The Institute is to foster understanding of the Deming System of Profound Knowledge to advance commerce, prosperity, and peace. We invite you to support the effort to carry out this aim. Further details concerning The Institute will be forthcoming. Please share this notification with your colleagues.

Diana Deming Cahill
Chairman of the Board

Linda Deming Ratcliff
Vice Chairman of the Board

Remembering Dr. W. Edwards Deming

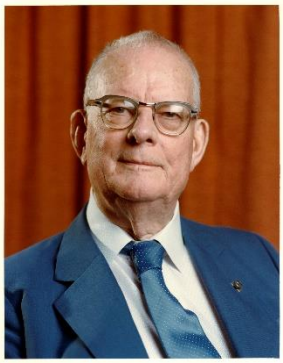


Photo courtesy of The W. Edwards Deming Institute®

Dr. W. Edwards Deming - do you know who he was? Dr. Deming passed away 25 years ago on December 20, 1993, but his message is just as relevant today as it was all those years ago. All companies have problems. If management would listen to and implement the teachings of Dr. Deming, their companies would have much fewer problems. I worry, though, as time passes that his message is beginning to fade – or to be changed as a few good-meaning souls try to update his message to "today's world."

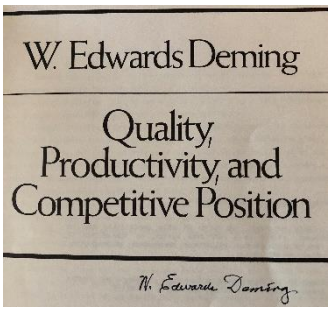
This month's publication takes a moment to remember Dr. Deming on the 25th anniversary of his passing. In this issue:

- A Look Back at Dr. W. Edwards Deming
- The System of Profound Knowledge
- The Fourteen Points
- The Seven Deadly Diseases
- Summary
- Quick Links

A Look Back at Dr. W. Edwards Deming

Google "Dr. W. Edwards Deming." You will see a lot of links. The top two are usually from *Wikipedia*, the free encyclopedia, as well as the *The W. Edwards Deming Institute.*

I first heard about Dr. Deming in 1984. I was attending a seminar on Statistical Process Control (SPC) as the company I worked for was embarking on a Total Quality Management (TQM) process. The four-day seminar was built around SPC but had a few hours on the philosophy of Dr. Deming. There were several videos that they showed. One, "If Japan Can, Why Can't We?", delivered a powerful message. It was produced by NBC News in 1980 and is widely thought to have started the quality revolution in America. And most importantly, it introduced the methods of Dr. Deming to America. This documentary showed how Japan captured the world-wide automotive and electronics markets by following Dr. Deming's teachings. In 1980, the vast majority of American managers had never heard of Dr. Deming. On the other hand, the most coveted industrial prize in Japan was the Deming Prize – named after Dr. Deming. And that award has been in place since 1951.



Dr. Deming was 80 years old when this NBC broadcast was shown. And America management was just waking up to his teachings – something he had done almost 30 years previously in Japan after World War II. I was able to go to one of his four-day seminars in 1985. I learned more about the problems with the western-style of management and his fourteen points to help transform that management style. I learned more about the PDSA cycle and the deadly diseases that hurt our companies. My interest in this "man who discovered quality" has continued. My autographed copy of his book, *Quality, Productivity, and Competitive Position*, is the prize of my book collection.

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A timeline of Dr. Deming's life – both personal and professional - is given on the Deming Institute website. A few highlights are given below.

Dr. Deming was born in Sioux City, Iowa on October 14, 1900. His degrees were:

- B. S. in Engineering from the University of Wyoming in Laramie (1921)
- Master's degree in Mathematics and Physics from the University of Colorado (1925)
- Ph.D. in Mathematical Physics from Yale University (1928)

Several places he worked had an influence on his later methods.

- He worked at Western Electric's Hawthorne Works in Chicago while in graduate school. This was during the time the Hawthorne Experiments were being done. The company had commissioned a study to see if its workers would become more productive in higher or lower levels of light. This study led to the term "Hawthorne Effect."
- He met Walter Shewhart, the father of statistical process control, in 1927. Dr. Shewhart had a great impact on Dr. Deming's future teachings, with understanding variation being one of the corner stones of his system of profound knowledge.
- He worked with the U.S. Census Bureau prior to World War II where he used statistically-based survey techniques to improve the accuracy and lower costs of the 1940 census.
- During WWII, he worked as a consultant to the Secretary of War. He also taught 2000 people at Stanford in how to use the PDSA cycle – an improvement methodology.

Following the war, Dr. Deming worked with several governments including Japan, Greece, and India. It was his work in Japan that caught the attention of NBC News in later years. His first trip to Japan was in 1946 when he was sent by the War Department to study problems related to agriculture. His trip in 1947 was to work with Japanese statisticians in several areas, including a census to be taken and nutritional and housing issues following the war.

The following is a key to how Dr. Deming helped Japan and is taken from The Deming Institute timeline:

> *"Unlike other American experts brought to Japan, Deming shows respect for the Japanese people and their culture; he treats them as colleagues instead of vanquished enemies."*

In 1947, Dr. Deming became the first honorary member of the Japanese Statistical Society. In 1950, he began to teach quality improvement to the Union of Japanese Scientists and Engineers (JUSE). Another key thing happened that year – Dr. Deming taught statistical methods for business to a group of Japanese executives – who listened to his message and his methods. Dr. Deming continued to work with the JUSE over the next 6 years. In 1951, the JUSE created the Deming prize (picture of medal from JUSE).

Dr. Deming continued to work with other countries and organizations over the years, including Germany, Mexico, Turkey, and the United Nations. He was not completely forgotten in America. In 1955 he was awarded the Shewhart Medal by the American Society for Quality Control (now ASQ).

Dr. Deming received an amazing award from the Japanese in 1960. Again, from The Deming Institute website:

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"Awarded the Second Order Medal of the Sacred Treasure by the Emperor of Japan. Emperor Hirohito decorates Deming with an award recognizing the philosophy and methods he provided to Japan, which allowed the nation to rise from destruction to the ranks of world economic power. Three decades later, when asked how he felt on receiving this honor, he says he felt "unworthy." "I was lucky," he says, showing he considers himself no exception to his own teachings about the effects of the system upon individual performance."

Dr. Deming continued to consult/teach in England, France, Taiwan, Argentina and takes a seventh trip to Japan in 1965. In 1975, Dr. Deming retired from teaching.

His "retirement" was short-lived. In 1980, NBC showed their documentary "If Japan Can, Why Can't We?" and Dr. Deming began to receive the attention he deserved in America. At 80 years old, he began to teach his four-day seminar through the United States and the world. He published more books including Quality, Productivity and Competitive Position and Out of the Crisis in the early 1980s. Dr. Deming presented his 14 points for management in those books. During the 1980s he received multiple awards including the National Medal of Technology, presented by President Reagan. In 1993, he published his last book The New Economics, where he presented in detail his system of profound knowledge. Dr. Deming passed away on December 20, 1993 in Washington, DC.

The System of Profound Knowledge

Dr. Deming spent years developing a theory for helping companies move forward into the twenty-first century. Remarkably, it all still applies today. Understanding Dr. Deming begins with understanding his "system of profound knowledge." This system is composed of four bodies of knowledge:

- Appreciation for a system
- Knowledge of variation
- Theory of knowledge
- Knowledge of psychology

The four parts are interrelated and are introduced below. There is a four part series on the System of Profound Knowledge on our website.

Appreciation for a System

The first part of profound knowledge is understanding what a system is. The following is an excerpt from Part 1 of our publication on the System of Profound Knowledge.

Dr. Deming defined a system as "an interconnected complex of functionally related components that work together to try to accomplish the aim of the system." Most people familiar with Dr. Deming will remember this as the system shown in the figure below.

Thus, suppliers, customers and the organization must work together to accomplish the aim of the system.

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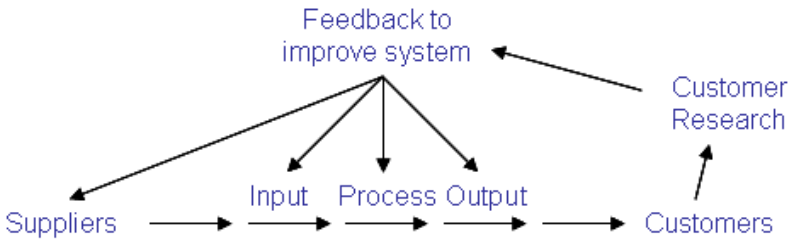

All companies and organizations can be part of a system. A system does not just automatically exist. Sure, the relationships shown in the figure exist for all organizations in terms of flow of products and services, but that does not make it a system. The key to understanding a system comes with realizing that there must be an aim, i.e., a purpose of the system. Without a purpose, there is no system. This is really Point 1 of Dr. Deming's 14 points: Create constancy of purpose for improvement of product and service. The aim should include the future and something for the employees of an organization. It should be communicated throughout the organization so everyone understands this aim. According to Dr. Deming, it is this concept of a system and an aim that helped propel Japan into becoming an economic superpower. Japan was the system.

What is an aim? Dr. Deming says that the aim should be "optimization of the system throughout time." Optimization is the "process of orchestrating the efforts of all components toward achievement of the stated aim."

Other things are important in appreciating what a system is including where the system boundaries lie. You can learn much more about this part of the system of profound knowledge through Dr. Deming's books, The W. Edwards Deming Institute website or the publications on our website.

Knowledge of Variation

The second part of the system for profound knowledge is variation. The following is an excerpt from Part 2 of our publication on the System of Profound Knowledge.

Variation is inevitable. Everything varies. A key part of continuous improvement is understanding the information contained in variation. Many organizations look at variation as only being within or out of specifications. We need to change our paradigm of variation. Is the variation we see due to special causes of variation or to common causes of variation, i.e., the way management designed the process?

Common cause variation is the variation that exists because of the way the process was designed (by management) and is managed. It refers to the many sources of variation that are normally present within a process. For example, consider how long it takes you to drive to work (assuming your process for doing so is the same from day to day). Suppose, on average, it takes 20 minutes to get to work. It doesn't take, however, 20 minutes each day. Suppose you know that, in general, it will take between 15 minutes and 25 minutes to get to work. Some days it may take 22 minutes; other days 18 minutes; others 24 minutes, etc. The difference between each day's time and the average, most of the time, will not be alarming to you. You realize that the differences are due to the traffic, speed you drive, etc. All these causes are called common cause variation. They represent the normal variation in your process of getting to work.

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In general, there are a large number of common causes present at any time. Each cause has an effect that can't be measured. For example, suppose one day you get to work in 17 minutes. You can't relate that to driving at a certain speed, to traffic patterns, to the way your car was running, etc. As long as you keep the process the same, common cause variation is the same from day to day. Thus, common cause variation is consistent over time. We can predict the effect of common cause variation.

Special causes of variation are not part of the way the process is managed and are considered abnormalities. This means that something that normally doesn't occur has happened. Consider the driving to work example. If you get a flat tire on the way to work, you will not arrive at work in the normal span of 15 to 25 minutes. This is a special cause. Its effect on the process is measurable. For example, if you have a flat tire, it might take 60 minutes to get to work. This is definitely out of the normal range of 15 to 25 minutes and is directly attributable to having a flat tire. Other possible special causes for driving to work would include adverse weather conditions and traffic congestion due to an accident. Special causes are sporadic in nature and cannot be predicted. However, they are usually easily discovered.

The approach to variation in this case is to look at what variation is due to common causes and what variation is due to special causes. It is important to distinguish between the two because the responsibility for process improvement depends on what type of variation is present. In general, special causes are not part of the process and can be discovered. It is usually the responsibility of the front-line personnel to find and eliminate special causes. Special causes are often related to one machine, one person, one type of raw material, sudden change in environmental conditions, etc.

Common cause variation, on the other hand, is part of the system or process. To decrease common cause variation, you must change the system. This is management's responsibility. Only management, not the front-line personnel, has the authority to change the system or process.

Dr. Deming has estimated that 94% of problems are due to common causes and are management's responsibility. He estimates that only 6% of problems are due to special causes.

Again, you can learn much more about this part of the system of profound knowledge through Dr. Deming's books, The W. Edwards Deming Institute website or the publications on our website.

Theory of Knowledge

This is the third part of the system of profound knowledge. From Part 3 of our publication on the System of Profound Knowledge:

Suppose a recent process change has decreased the variation in product output. Why did this occur, i.e., why did the process change decrease the variation? "I don't know, we just decided to try it and it worked." Have you learned anything? Of course, we learned that the change worked. Was the improvement due to the change or something else that may have changed without your knowledge? " I don't know. It works. Leave it alone."

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Often, we make process improvements as if the process were a black box. Simple trial and error. Are we really learning anything about the process? Many would say yes, but we are really only gathering information about the process, not knowledge.

Dr. Deming said: "Knowledge comes from theory." To learn, one must have a theory. Without theory, we cannot make predictions about what might happen. Theory is a prerequisite for learning."

Knowledge is important for improvement to occur. Dr. Deming talked about an improvement method called the PDSA cycle - plan, do study and act. Walter Shewhart was the father of statistical process control. This cycle is often referred to as the Deming Cycle, but Dr. Deming credited it to Shewhart.

The four steps in the cycle are:

Plan: Plan a change in a process aimed at continuous improvement.

Do: Carry out the change.

Study: Study the results to determine if the change improved the process, i.e., determine what we learned.

Act: If appropriate, adopt the change, suggest another change or abandon the cycle.

You can learn much more about this part of the system of profound knowledge through Dr. Deming's books, The W. Edwards Deming Institute website or the publications on our website.

Knowledge of Psychology

The fourth part of profound knowledge deals with psychology. From Part 4 of our publication on the System of Profound Knowledge:

This may be the part of the system of profound knowledge that is lacking in most organizations today. This is what some refer to as the human or people side of quality. Unfortunately, the answer for many organizations is to form teams and assume that they have the people side of quality. Their seminars are based on working together as a team, how to lead a team meeting, and how to plan a team meeting.

Teamwork is important in the quality process. It is important that employees understand the roles of team leaders and team members, the stages of team growth, and the importance of agendas and minutes.

It is also critical that there exists a methodology to manage the formation of teams and ensure their success. However, motivation is much more than putting people on teams. This part of profound knowledge goes much beyond teams.

Unfortunately, six sigma essentially ignores the people side of quality as they train their black belt in the tools to improve processes. Much process improvement is blocked because people don't understand what motivates and drives others.

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What motivates people? Answer - different things. As a manager, one must understand that people are different. The manager "must be aware of these differences and use them for optimization of everybody's abilities and inclination." To do this, a manager must understand motivation and psychology.

Dr. Deming believed that people had a right to "joy on the job." And that management must drive out the fear that their management system has created.

You can learn much more about the system of profound knowledge through Dr. Deming's books or The W. Edwards Deming Institute website.

The Fourteen Points

Dr. Deming developed 14 points to help transform management. Dr. Deming presented the 14 points in his book Out of the Crisis: "The 14 points are the basis for transformation of American industry. It will not suffice merely to solve problems, big or little. Adoption and action on the 14 points are a signal that management intend to stay in business and aim to protect investors and jobs. Such a system formed the basis for lessons for top management in Japan in 1950 and in subsequent years."

You will often see the 14 points listed alone. They should not stand alone. They should be provided in the context Dr. Deming provided with the System of Profound Knowledge. The four-part series on our website intertwined the 14 points within his System of Profound Knowledge. In his preface to his book The New Economics, Dr. Deming wrote "My 14 Points for Management follow naturally as application of the system of profound knowledge, for transformation from the present style of management to one of optimization."

Here are the 14 points.

1. Create constancy of purpose toward improvement of product and service, with the aim to become competitive and to stay in business, and to provide jobs.
2. Adopt the new philosophy. We are in a new economic age. Western management must awaken to the challenge, must learn their responsibilities, and take on leadership for change.
3. Cease dependence on inspection to achieve quality. Eliminate the need for inspection on a mass basis by building quality into the product in the first place.
4. End the practice of awarding business on the basis of price tag. Instead, minimize total cost. Move toward a single supplier for any one item, on a long-term relationship of loyalty and trust.
5. Improve constantly and forever the system of production and service, to improve quality and productivity, and thus constantly decrease costs.
6. Institute training on the job.
7. Institute leadership. The aim of supervision should be to help people and machines and gadgets to do a better job. Supervision of management is in need of overhaul, as well as supervision of production workers.
8. Drive out fear, so that everyone may work effectively for the company.

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9. Break down barriers between departments. People in research, design, sales, and production must work as a team, to foresee problems of production and in use that may be encountered with the product or service.
10. Eliminate slogans, exhortations, and targets for the work force asking for zero defects and new levels of productivity. Such exhortations only create adversarial relationships, as the bulk of the causes of low quality and low productivity belong to the system and thus lie beyond the power of the work force.
    a. Eliminate work standards (quotas) on the factory floor. Substitute leadership.
    b. Eliminate management by objective. Eliminate management by numbers, numerical goals. Substitute leadership.
11. Remove barriers that rob the hourly worker of his right to pride of workmanship. The responsibility of supervisors must be changed from sheer numbers to quality.
12. Remove barriers that rob people in management and in engineering of their right to pride of workmanship. This means, inter alia, abolishment of the annual or merit rating and of management by objective.
13. Institute a vigorous program of education and self-improvement.
14. Put everybody in the company to work to accomplish the transformation. The transformation is everybody's job.

The Out of the Crisis book expands on these 14 points.

Seven Deadly Diseases

Dr. Deming developed the Seven Deadly Diseases of Management to describe what he thought were the most serious barriers that management faces today. Again, from Out of the Crisis: "The 14 Points of Chapter 2 constitute a theory of management. Their application will transform the Western style of management. Unfortunately, deadly diseases stand in the way of the transformation." The seven deadly diseases are:

1. Lack of constancy of purpose to plan product and service that will have a market and keep the company in business and provide jobs.
2. Emphasis on short-term profits: short-term thinking (just the opposite from constancy of purpose to stay in business), fed by fear of unfriendly takeover, and by push from bankers and owners for dividends.
3. Evaluation of performance, merit rating, or annual review.
4. Mobility of management; job hopping.
5. Management by use only of visible figures, with little or no consideration of figures that are unknown or unknowable.
6. Excessive medical costs.
7. Excessive costs of liability swelled by lawyers that work on contingency fees.

Again, the book Out of the Crisis provides more detailed information on the seven deadly diseases. It seems to me that they are all still with us.

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Summary

Dr. Deming was a remarkable man – one who is credited with helping the Japanese rebuild after World War II but one who was not listened to in his own country until the 1980s. His teachings created a new emphasis on how to manage a company. His System of Profound Knowledge, along with his 14 points and seven deadly diseases laid the framework for the transformation of the western style of management. I wonder how he would think we have done on these things 25 years after his death?

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Thanks so much for reading our publication. We hope you find it informative and useful. Happy charting and may the data always support your position.

Sincerely,

Dr. Bill McNeese
BPI Consulting, LLC

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ARCHITECTS OF QUALITY

TEN GURUS

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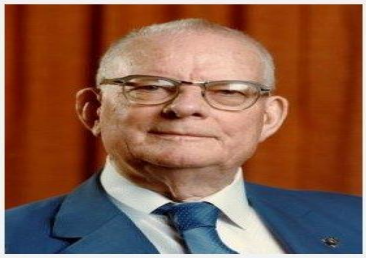
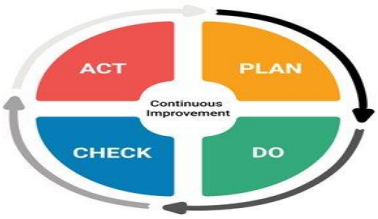
By definition, a guru is someone who is both kind and smart, and who also teaches others. In addition to these qualities, a quality guru should have a groundbreaking approach to quality in the corporate world.

Quality management is the practice of managing the whole production process to produce an excellent (quality) product or service. Quality management focuses on the customer and meeting the customer's needs, and everyone in the firm is responsible for the quality of the product. The basic quality management principles are: quality, teamwork, and proactive management. Quality management is not a single doctrine derived from a particular individual or idea—it is a collection of ideas—but there is a core group of contributors known as the Quality Gurus. These are (1) Dr. W. Edwards Deming, (2) Dr. Joseph Juran, (3) Dr Philip B Crosby, (4) Dr Shigeo Shingo, (5) Dr. Genichi Taguchi, (6) Dr. Kaoru Ishikawa, (7) Dr Armand V. Feigenbaum, (8) Dr Taiichi Ohno and (9) Walter A Shewhart. The Quality Gurus have all had a significant impact on the world through their contributions to improving not only businesses, but all organizations including state and national governments, military organizations, educational institutions, healthcare organizations, and many others.

No one can deny the crucial responsibilities played by quality experts (gurus) in expanding and transforming the idea of quality from a narrowly focused technical system to a more comprehensive body of knowledge known as overall quality with implications for management in production. TQM was first developed in Japan after WWII thanks to the work of quality experts like Deming and Juran. Eventually, influential business thinkers like Crosby, Feigenbaum, Ishikawa in and others refined this management strategy to dramatically enhance company quality. TQM gurus' proposals and theories led to the creation of several national as well as international quality awards (QAs) in the 1980s and 1990s, all with the aim of providing criteria for TQM implementation.



W. Edwards Deming



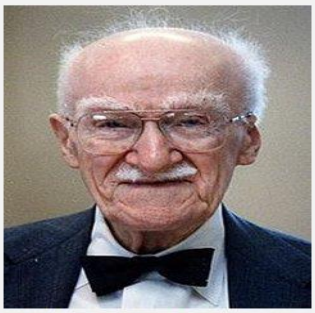
W. Edwards Deming believed that management, both at the individual and organisational levels, was responsible for 94% of quality issues. His fourteen-point plan is an all-encompassing management philosophy applicable to businesses big and small, in the public sector as well as the private and service industries.

With his "Deming Cycle," "Fourteen Points," and "Seven Deadly Diseases", Dr. W. Edwards Deming has become the most important quru of management of quality in the United States and Japan. Deming earned degrees in engineering and physics from both Yale University and the University of Wyoming. While working at Western Electric, he was inspired by Dr. Shewhart's conceptual vision for quality to create the control chart and the PDSA cycle (Shewhart cycle). After Deming left Western Electric, he applied the PDSA framework (Shewhart cycle) he had devised to "clerical activities." At the United States Department of Agriculture, he was a trailblazer in the use of statistical and sampling techniques from 1927 until early 1940. Both the War Department with the Census Bureau used Deming during World War II to adopt control charts and sample methodologies. The Japanese businesses he consulted with after the war benefited greatly from his expertise in quality assurance.

In the early 1950s, Japanese goods were notorious for their high failure rates and low quality in comparison to those of other nations. He told the Japanese that "numbers may be utilised to regulate that process", emphasising that "process" is where most manufacturing problems arise. Deming's consulting work for the Japanese economy had very favourable effects on the country's goods and services. Soon, he was hailed as a local hero. The "Deming Prize" was founded by JUSE in 1951 to recognise Deming's contributions to Japan. The "Second Order Ribbon of the Sacred Treasure" was bestowed to him by Emperor Hirohito in 1960.

The PDCA cycle, which is based on the Shewhart cycle (PDSA) that was established by Deming is a crucial framework to guide improvement for quality and productivity. DMAIC (Six Sigma) as well as DMADV (DFSS) added the rigour of a project's life-cycle (PLC) to the launch and completion of Six Sigma projects, and RADAR (the EFQM Excellence framework) has been used to evaluate business effectiveness. The "Plan-Do-Check-Act" (PDCA) technique is one way that management system standards like ISO 9001 may help businesses become more effective at meeting their customers' needs and achieving their quality goals.

Deming was vague about what constituted quality. In his "renowned system diagram," Deming argues that the consumer should be the only arbiter of quality. The consumer has a pivotal role in both the beginning and end of his system. Deming's ideas and concepts were incorporated in the creation of the ISO 9000 family of quality standards, and they even ushered in a new era in supply and chain management.



Joseph Juran

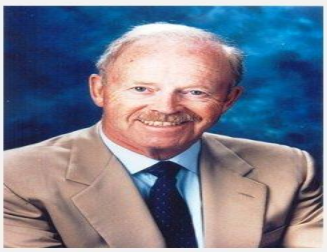
Dr. Joseph M. Juran has had more impact than any other expert in quality management, including Deming. He focused more on the management side of quality assurance. The book "Quality Control Handbook" by Juran, originally published in 1951, established him as a pioneer in the field of quality management. Beginning his career as an engineer in 1924 with Shewhart's group at the Bell System, where he was most noted for his contributions to quality improvement, Deming eventually departed Western Electric after World War II to establish his own institution. He was the second American guru to be brought to Japan in 1954 by JUSE to teach and supervise "quality control courses" to the country's top business executives, after Deming. His lectures introduced and emphasised the managerial aspects of planning, organising, and controlling, and they centred on the responsibility of leadership to achieve quality as well as the need for setting goals; this is why he emphasised a managerial approach to a similar analogy for better quality results through three basic processes or "Juran's Trilogy," which together form a successful framework for Total Quality Management to obtain quality goals and improve quality.

(i) Quality planning: a) Set targets for improved quality. b) Determine your target audience. c) Find out what your consumers want. d) Create enhancements to the product in direct response to user feedback. e) Find ways to manufacture the product's characteristics. f) Put controls in place for the process, then implement the plans. **(ii) Quality control:** a) Examine the results in the real world. b) Check actual results vs expected ones. c) Take advantage of the gap. **(iii) Quality improvement**: a) Put up evidence why it is necessary. b) Get the groundwork laid. c) Find the enhancement initiatives. d) Set up your project groups. **(iv) Provide the teams with resources, training, and motivation to**: a) Determine the root cause(s), and b) Rev up the treatments. Put safeguards in place to preserve the progress.

Effective quality management requires the systematic preparation, enhancement, and regulation of quality-related activities. Process control is established at an agreed-upon level of quality performance; from there, project-specific enhancement strategies are developed and implemented.

To boost customer happiness, he presented the "Ten Steps to Quality Improvement," which include the following: 1. Create an understanding of the potential for change; 2. Make plans for betterment; 3. Establish a quality council, pinpoint issues, choose projects, assign individuals to teams, and choose leaders; 4. Offer instruction; 5. Create and implement plans to address issues; 6. Provide updates; 7. Show appreciation; 8. Share your findings; 9. Do the math and; 10. Keep the ball rolling by integrating continuous improvement into your company's everyday operations.

He focused on both external and internal clients, not only the final buyer. From the initial product developer to the end consumer, everyone in between is a supplier or a customer. Furthermore, the individual will be a process, engaged in some kind of change or action.



Philip Crosby

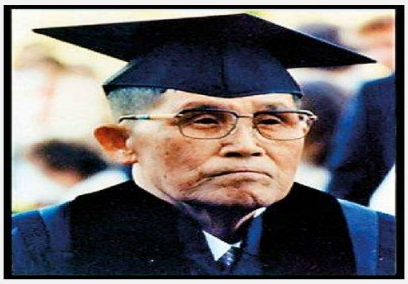
Philip Bayard Crosby is widely recognised for his "Zero Defects" and "quality is free" theories. He held that an effective quality management must be "based on prevention- based system" and that errors can arise from a lack of employee knowledge and focus. According to Crosby, "quality is not compared," adding that "quality in terms of goodness, feel, elegance, and richness" do not exist. Crosby's four absolutes, drawn from his Total Quality Management philosophy, are summarised below in light of his notion of "Zero Defects."

a) Conformance to requirements is the definition of quality, not goodness or elegance.
b) A quality system is one that emphasises prevention rather than evaluation. Good quality management (TQM practises) may help avoid potential problems;
c) The goal should be "Zero faults" in terms of quality performance, although anything near would do. Rather than "that's near enough," It is unacceptable to make mistakes and;
d) The cost of nonconformance is the true quality indicator.

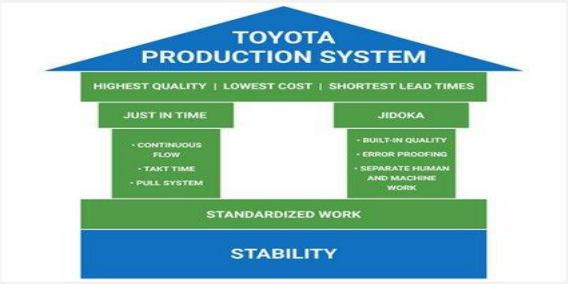
Crosby said that management is responsible for 80 percent of an organization's quality issues, hence their focus should be on fixing such issues. In the same vein as Deming and Juran's suggestions for enhancing quality, Crosby proposed a set of 14 directives for business leaders to follow.

1. To make it apparent that management is committed to quality; 2. To raise the standard of cross-departmental collaboration, "quality improvement team" means: 3. Measuring performance in order to guarantee quality enhancement is what we mean when we say "quality measurement." 4. Quality cost measurement inside an organisation for management purposes; 5. "Quality awareness" means raising workers' level of understanding about quality. 6. "Corrective action": to offer a methodical approach to resolving issues. 7. "Zero defects action" means showing unwavering dedication to the zero faults initiative. 8. Employee training: identifying the most effective ways to improve the quality of training for managers. 9. "Zero Defects Day" is an initiative aimed at making the "Zero Defects" (Do the right things at the right time) message tangible to all workers. 10. "Goal setting": allowing everyone in the office to set personal and team objectives for betterment; 11. The goal of "error-cause elimination" is to ensure that all employees are effectively communicating with management in order to identify quality issues and provide workable solutions. 12. "Recognition": expressing gratitude to those who have carried out their responsibilities with excellence; 13. "Quality councils": to form quality councils for frequent communication, and; 14. Repeat the process to demonstrate to your staff that your commitment to quality improvement is ongoing.

Crosby defined the several stages of management of quality maturity, which may be used to evaluate an organization's level of excellence management development. These are the five stages of quality management maturity:
1. Unpredictability; 2. Awaking; 3. Illumination; 4. knowledge and 5. assurance.
Several other metrics, including management comprehension and attitude, quality organization status, issue handling, cost of quality as a proportion of sales, and total firm quality posture, may be used to evaluate the business's progress through these phases.

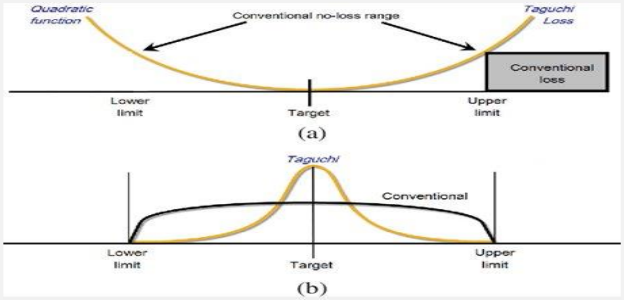


Shigeo Shingo



When it comes to Just-in-Time production, he is almost synonymous with the concepts of the Poka-Yoke (error proofing) system and the single minute exchange of die (SMED) system. Defects are investigated, production is halted, and quick feedback is provided via Poka Yoke to help pinpoint and eliminate their causes. The inclusion of a checklist acknowledges that people are fallible and forgetful. The goal of Poka-Yoke is to prevent mistakes from evolving into defects, which he differentiated from "errors," which are unavoidable but do not reach the consumer. There is a cause-and-effect link between human mistake and the presence of defects. Poka-Yoke & source inspections are necessary for the ideal manufacturing system of zero quality control. In the latter, mistakes are examined before they can become faults, and either the system is put on hold while the problem is fixed, or the incorrect condition is modified automatically.

Genichi Taguchi

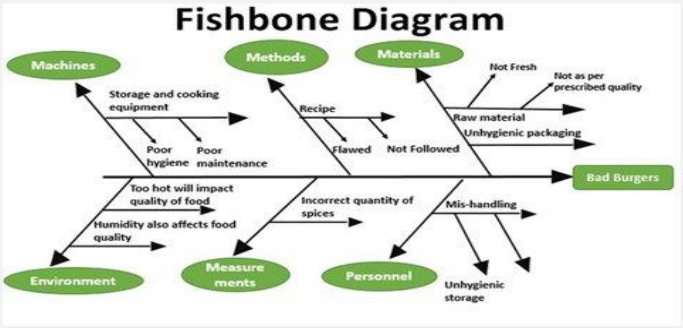


Dr. Genichi Taguchi argued that rather than trying to control all the various variations that occur during real production, it is better to create a product that is resistant or insensitive to variations in the process of production. He did this by taking previously existing information about experimental design and making it more accessible and applicable for quality professionals, therefore putting the theory into practise. He divided off-line quality in three stages: design, development, and production. This shifts the focus of quality and dependability back to where it belongs: the design phase.

i. System design
ii. Parameter design
iii. Tolerance design

Taguchi technique is essentially a prototype process that helps designers determine the best parameters for making a product that will last through several iterations of production and still satisfy the needs of the end user. Taguchi methodologies, which may be seen along a continuum, are now closely linked with quality function deployment (QFD) in the eyes of many businesses.

Kaoru Ishikawa



Among Dr Kaoru Ishikawa's numerous contributions to quality management are the following: the "seven fundamental tools of quality" framework, the "whole quality perspective," company-wide quality control, a focus on the human element of quality, the Ishikawa diagram" or the Ishikawa diagram.

i. Pareto analysis = which problems are big?

ii. Cause and effect diagrams = Causes of problems?

iii. Stratification = How data is made up?

iv. Check sheets = How often it is done? Or occurs?

v. Histograms = How do overall variation looks like?

vi. Scatter charts = What is the relationship among factors?

vii Process control charts = Which are the variations who controls and how?

He felt that these seven methods should be well-known across an organisation and utilised to diagnose issues and provide solutions. When combined, they make for a formidable toolbox.

i. Venn diagram;

ii. Inverse causation chart (Ishikawa chart);

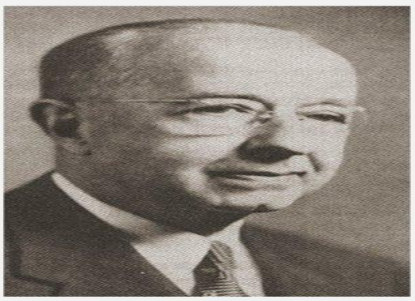
iii. Grouping diagram;

iv. The scatter plot;

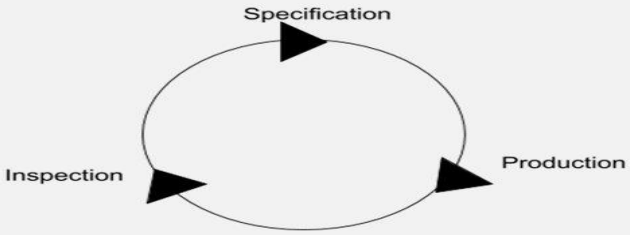
v. a checklist;

vi. and the histogram;

vii. Calliper of control



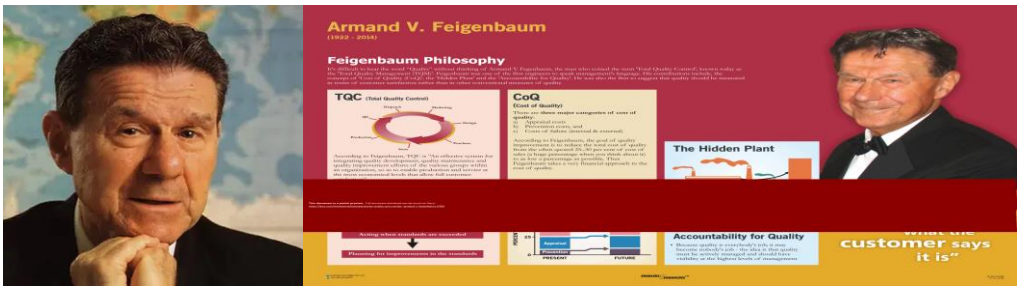
Walter Andrew Shewhart



The term "statistical process control" was used by Walter Shewhart to describe the practice of using statistical techniques to monitor and regulate industrial processes in order to create things with consistent quality. Shewhart also proposed the use of "control charts," graphical aids for tracking a process's results over time and seeing when things have gotten out of hand. His concepts have had a major impact on the evolution of quality assurance practices in a variety of businesses throughout the globe.

Taiichi Ohno

Japanese industrial engineer & businessman Taiichi Ohno is credited for helping create the Toyota Production System (TPS). Ohno pioneered the TPS, an approach to production that seeks to eliminate inefficiencies and waste. Both the "just-intime" manufacturing strategy of making just what is required at any given moment and the "kanban" system are often attributed to him. This visual communication system is used in factories to facilitate the smooth movement of products. Many businesses throughout the globe have implemented some of Ohno's suggestions, which have greatly influenced the manufacturing industry.



Armond V Feigenbaum

Dr. Armand V. Feigenbaum was a quality expert from the United States. His time at GE shaped his ideas into something really groundbreaking. complete quality management, often known as complete quality control, was first proposed by him. He described it as "an effective system for combining quality growth, quality maintenance, and quality improvement activities of the different units within an organisation to enable manufacturing and client service at the most affordable levels that allow maximum customer satisfaction."

Total quality management (TQM), the current iteration of total quality control, has been extensively adopted as a viable operational philosophy across all economic sectors and is almost synonymous with Feigenbaum's name.

In 1951, Feigenbaum released his first book, the "Quality Control Handbook," and became known as the "guru" who first presented the notion of "Total Quality Control" (TQC). The Japanese adopted this outlook, along with the notion of "Company Wide Quality Control," in the 1980s. His theory is on a "prevention-based approach" that places a premium on designing high-quality products and services and optimising the processes at their origin. To ensure that the goods are in line with "pre-defined standards" (such ISO 9000), this approach relies on documentation and audits. The importance of everyone in the company, from secretaries to engineers to factory employees, was something that Feigenbaum emphasised as well.

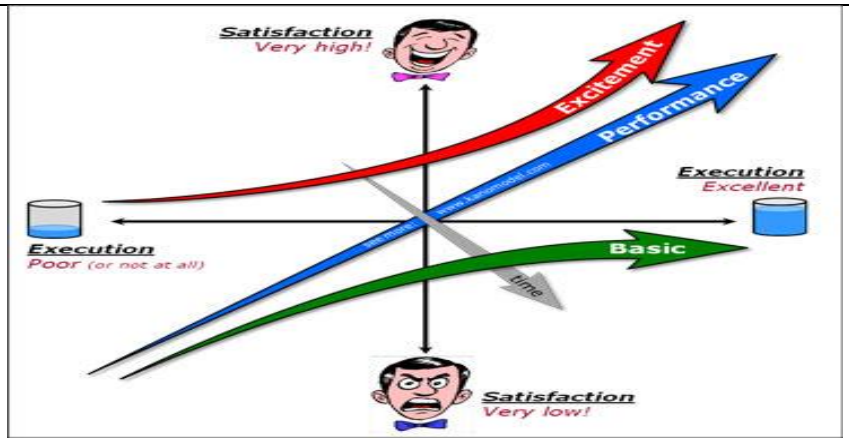
The fundamental ideas of Feigenbaum's systematic approach for quality as follows: (i). Quality is an organisational endeavour; (ii). What a consumer values most is what defines quality. (iii). Price and value are inseparable; (iv). Excellence calls for fierce devotion from every member of the team. (v). Managing with quality is an approach. (vi). Innovation and quality go hand in hand; (vii). Integrity in production; (viii). Constant refinement is essential for quality; (ix). Productivity may be increased with the least amount of money and resources spent on it by focusing on quality, and (x). Quality is achieved by a comprehensive system that involves both clients and vendors.

He emphasised "a system approach to quality," also known as "TQC," which consists of the following major phases for effective quality management:

Setting quality standards:

i. evaluating how well something fits these criteria;
ii. responding when expectations aren't reached, and;
iii. Efforts are being made to raise these benchmarks.

Noriaki Kano



Dr. Noriaki Kano is the only professional in the world who is Honorary Member of International Academy for Quality (IAQ), American Society for Quality (ASQ) and Japanese Society for Quality Control (JSQC) the three most prestigious quality societies of the world. This is the highest honor these societies bestow on quality professionals. He is honorary member of many societies of quality professionals in Europe, Asia and Americas; and visiting professor at various prestigious universities in Europe, USA and Asia.

Dr. Kano is the founding President of the **Asian Network for Quality (ANQ) and Honorary Chairperson since 2005.** He has been Board Member of **Union of Japanese Scientists and Engineers (JUSE) since 2011** and The Overseas Human Resources & Industry Development Association **(HIDA) (2007-12)** the two most prominent organizations promoting quality in Japan and overseas.

Prof. Kano is an honorary advisor to various quality bodies of other countries like China and India and has **made positive contribution for development of quality around the world providing consultation, keynote speeches and conducting seminars in 84 countries.**

Prof. Kano has been the Chairman of the selection committee for Deming Prize for individuals since 2011 and Chairman of Deming Application Prize Committee for two terms ie. 2004 to 2007. These are considered the most prestigious awards in the field of quality management in the world.

Accomplishments:

Dr. Kano has been **Board Director of Komatsu Ltd.** for 6 years and been **Corporate Auditor at Sekisui Chemical Ltd.** for 6 years. A very rare accomplishment indeed.

He is best known for development of **Attractive Quality Creation that is popularly known as Kano Model / Method** and very widely used around the world in development of new products and services in all sectors of economy. Another important approach developed by Dr. Kano for breakthrough improvement is called the Task Achieving QC Story. He has **published** over 300 papers and books including "Attractive Quality" (Kano Method / Kano Model)", "Guide to TQM in Service Industries" (in English) and "Way to Breakthrough and Creation" (in Japanese)

Dr. Kano has helped many **multinational companies from Japan, USA, Europe, Taiwan, Thailand, China and India** besides other countries to enhance their business performance using quality management approaches.

Dr. Kano continues his **research activities** to find new ways to improve organizational performance based on quality management theory and practices. Over the last 4 to 5 years he is **developing new methodologies and tools that enable effective use of Information and Communication Technologies (ICT)** to make breakthrough improvements. He develops these methods jointly with his client organizations. In some countries similar methodologies are called Quality 4.0. He is ahead of the rest in this field.

Honors:

Eponymous Dr. Kano has the unique distinction of Awards being established in his name:

- 2010 Ishikawa-Kano Award Established by Asian Network for Quality (ANQ)
- 2009 Kano Quality Award Established by Technological Promotion Association (TPA, Thailand)

Following is some important Web Pages which contain more useful/interesting INFO

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01] https://www.qualitygurus.com/9-quality-gurus-and-their-contributions/

02] https://www.bizmanualz.com/improve-quality/who-are-the-top-quality-gurus.html

03] https://www.linkedin.com/pulse/architects-quality-meet-9-gurus-qualitygurus-com

04] https://iaeme.com/MasterAdmin/Journal_uploads/IJM/VOLUME_10_ISSUE_5/IJM_10_05_036.pdf

05] https://www.focusstandards.org/quality-gurus-key-contributions/

06]https://irgst.org/articles.aspx/2571/Quality%20Gurus%20and%20their%20Contributions

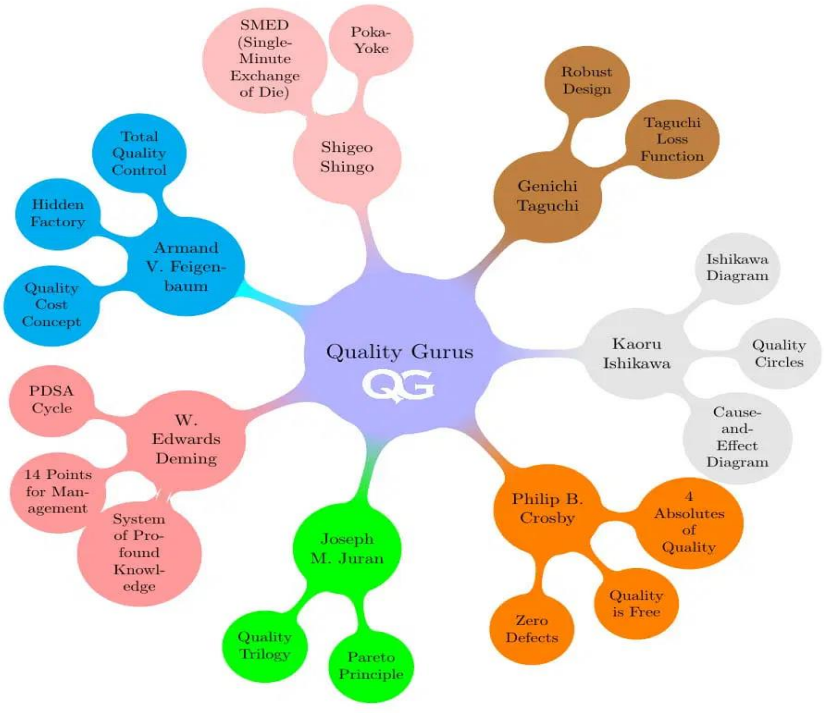
07] https://www.scribd.com/doc/45079947/Top-Ten-Quality-Gurus

08] https://www.linkedin.com/pulse/quality-gurus-abdur-rahman-farooq

09]https://www.encyclopedia.com/management/encyclopedias-almanacs-transcripts-and-maps/quality-gurus

10] https://better-operations.com/2013/02/26/quality-gurus-on-quality-management/

11] https://isqnet.org/about-us/governing-council/dr_noriakiKano.html



Story of a Remarkable Person

Dr Willaim Edwards Deming

Author:

Robert B. Austenfeld, Jr

Resource:

Papers of the Research Society of Commerce and Economics
Vol. XXXXII No. 1

Containing the following Chapters

1. Introduction
2. The Early Years (1900–1917)
3. The College Years (1917–1928)
4. His First Jobs (1927–1946)
5. His Early Work with the Japanese (1947–1956)
6. The Interim Years (1956–1980)
7. The "If Japan Can, Why Can't We?" Era (1980–1987)
8. The Final Years (1988–1993)
9. Deming's Basic Teachings
10. A Profile of the Deming Personality
11. Conclusion

W. Edwards Deming: The Story of a Truly Remarkable Person

Robert B. Austenfeld, Jr.

(Received on May 10, 2001)

1. Introduction

The purpose of this paper is to provide a brief biography of Dr. W. Edwards Deming. Deming was born in 1900 and died in 1993. Almost up to his death he was unbelievably active in promoting quality. He never established an "institute" or school like other quality gurus but, for the most part, was in the private consulting business working out of Washington, D.C. He has probably had more influence on American business than any other person except, perhaps, Fredrick Taylor. Fortunately, much of what Deming taught overturned the "unthinking worker" approach of Taylor. What follows is a brief look at the life of this remarkable person followed by his main teachings and a profile of his personality.

This paper is organized as follows:

1. Introduction
2. The Early Years (1900–1917)
3. The College Years (1917–1928)
4. His First Jobs (1927–1946)
5. His Early Work with the Japanese (1947–1956)
6. The Interim Years (1956–1980)
7. The "If Japan Can, Why Can't We?" Era (1980–1987)
8. The Final Years (1988–1993)
9. Deming's Basic Teachings
10. A Profile of the Deming Personality
11. Conclusion

2. The Early Years (1900–1917)[1)]

William Edwards Deming was born on October 14, 1900 in Sioux City, Iowa, approximately in the center of the continental U.S. He was named after both parents: William Albert Deming, his father, and Pluma Irene Edwards, his mother. He also inherited his father's penchant for learning and his mother's for music. His father was trained in the legal profession and did free-lance legal work such as writing contracts. His mother had studied music and gave lessons using their grand Kimball piano. When he was small, Deming recalled scribbling "with a pencil on paper, saying that I was writing music. My mother would put it on the piano and play something, and declare that I had written great music" (from Kilian, 1992, page 153). In fact, Deming went on to write several pieces of music, mostly religious. He also learned to play the piano, organ, piccolo, and flute.

Deming had two younger siblings, brother Robert born in May 1902 and a sister, Elizabeth, born in January 1909.

When Deming was about four, the family moved to a farm near Polk City, Iowa in the south-central part of the state. This was the "Edwards farm" owned by Deming's grandfather (mother's side) who, for some reason, had moved to Missouri. After living there for about two years, the Deming family again moved, this time to Cody, Wyoming. This was quite a long trip in those days, all the way across Nebraska and much of Wyoming. The trip was by rail since that was the main means of transport in those days. Cody was named for the famous buffalo hunter and scout, William Frederick Cody, who was better known as "Buffalo Bill." The Demings lived in a small house on the grounds of the Irma Hotel which was named for Buffalo Bill's daughter. Since Buffalo Bill was a frequent visitor to this hotel, the Deming boys had a first-hand acquaintance with him and

1) Unless otherwise stated, biographic data in this paper comes from one of these three sources: Gabor (1990), Kilian (1992), or Walton (1986).

he even recognized them when they were at one of his famous Wild West shows while visiting an aunt in Los Angeles. While in Cody, Deming's father worked for the Simpson Law office as a legal clerk and his mother supplemented the family income with music lessons.

After about two years in Cody, Deming's father took advantage of a homestead program which gave out free land in 40 and 80 acre plots as part of a major irrigation reclamation project. This caused the family to move once more to Powell, Wyoming, about 22 miles north of Cody. Deming's father secured a 40 acre plot. That he was not really into farming can be judged by his distinction between an "agriculturalist" and a farmer: a farmer makes his money on the farm and spends it in the city whereas an agriculturalist does just the opposite; *he* was an agriculturalist! Although those early days in Powell were often touch and go, eventually his father was able to claim a moderate amount of success "selling insurance, making loans to farmers, drawing up wills, and selling land" (Gabor, 1990, p. 39). However, for their first four years in Powell, the Demings lived in a tarpaper shack about the size of a freight car and, in fact, this is where sister Elizabeth was born[2].

Even as a youngster Deming took on odd jobs and either saved the money he made or helped with family expenses. He recounts helping out at Mrs. Judson's Hotel in Powell for $1.25 per week and being responsible for lighting the five gasoline street lamps in Powell every evening for $10.00 per month (electricity did not come to Powell until around 1918).

The mostly frugal conditions under which Deming was raised no doubt influenced his belief about not wasting anything. Even when, in later life, he was commanding rather large sums of money for his services, he and his wife continued to live in their modest house in Washington, D.C. near the Maryland border.

2) Since Powell was only then becoming a town, Elizabeth could also claim the distinction of being the first baby born there (Walton, 1986).

The idea of not wasting anything fits in very well with the practice of good quality management and controlling the "cost of quality" since one important element of this cost is that for rework and nonconforming product that cannot be salvaged.

And so, Deming progressed through his high school days almost as an ideal son, studying and working hard yet also enjoying himself as camping and fishing were among his passions.

3. The College Years (1917–1928)

In 1917, Deming set out for Laramine in the southeastern part of Wyoming to attend the University of Wyoming. There he supported himself doing janitorial work, working as a soda jerk at a drug store, hustling suits to be cleaned for a dry cleaner, and various other odd jobs. Apparently these were happy years since a brief chapter in Kilian (1992) devoted to that time is called: *Those Good Years at Wyoming U*. Deming admits "I don't remember much about classes except that mathematics went all right, and that I had a dreadful time with English" (from Kilian, 1992, page 170). Among other activities, he played in the band, starting off with drums and timpani and then switching the next year to the piccolo deciding that "it would be better to play a smaller instrument" after hauling the drums and timpani around to off-campus events. Deming also mentions having the nerve to ask a girl to barn dance and being "almost overwhelmed by her acceptance." In 1921, Deming earned his bachelor's degree in electrical engineering.

Deming's mother passed away in 1920. She died at the Mayo Clinic in Rochester, Minnesota, a week after having had an operation there. Five years later, his father married Grace Peterson; Grace and Deming's mother had been good friends. Deming's father was to live only five more years, passing away in 1930.

After graduating from the University of Wyoming, Deming stayed on and taught engineering and continued his study of mathematics. He admits he was not a good teacher of engineering — "How could I do otherwise? I didn't know very

much" (from Walton. 1986, p. 6).

Apparently Deming was not too shy around women because in June, 1922 he married Agnes Belle, a young school teacher. Although they had no children themselves, they did later adopt a daughter, Dorothy, when she was 14 months old. Deming marriage to Agnes was to be short-lived as she died in November 1930. Two years later, April, 1932, Deming married Lola Shupe, an assistant to Deming at the United States Department of Agriculture (USDA) Fixed Nitrogen Research Laboratory where he then worked. Besides Dorothy, Lola and Deming had two daughters of their own: Diana, born December 1934 and Linda, born June 1942.

At about this same time (1922) Deming had taken a job teaching physics at the Colorado School of Mines in Golden just outside Denver. This job was offered to him by a professor he had studied physics under at the University of Wyoming. He taught there two years and also took courses in mathematics by correspondence and summer school from the University of Colorado in Boulder, earning his master's degree in 1925 in mathematics and physics. In 1924 he moved to Boulder to take a job with the University of Colorado Graduate School; again a job[3] offered by a former professor, the dean of the graduate school, Oliver Lester.

It was Dean Lester who also encouraged Deming to go to Yale (New Haven, Connecticut) to get his doctorate. Lester also secured for Deming an instructorship at Yale that paid $1,000 per year. As Deming said, "We lived on it." It was during this time that Deming had another experience that was to greatly influence his thinking about quality and how workers should be treated. During 1925 and 1926 he spent four months each summer working on transmitters at the famous Western Electric Hawthorne Plant in Chicago[4]. He later recalled the inhumane

3) As an assistant professor of physics.

4) This plant was the site for the famous Elton Mayo (MIT) experiments in the 1920s on how changing working conditions affects worker productivity. It was found that ↗

conditions under which most of the workers had to work. He also recalled a discussion he had with a Dr. Hal Fruth who told him that after getting his degree from Yale, Western Electric might offer him a job at $5,000 per year. This was more that Deming "had ever expected to earn." However, Dr. Fruth went on to explain, that it was relatively easy to find a man worth $5,000 per year, what they were really looking for was a man who would develop into someone worth $50,000 per year, and *that* was hard to find. Apparently Fruth thought Deming was that sort of person.

It was during his time at Western Electric that Deming also began to learn about the importance of uniformity in telephone equipment and the name of a person who would soon become a part of his life: Walter A. Shewhart of Bell Laboratories. Shewhart was beginning to apply statistics to manufacturing processes in a way that would permit the worker to study and control variation in those processes. Deming was later to adopt this idea as a fundamental principle of his quality philosophy.

Although he finished his work at Yale for the doctorate in the summer of 1927, Deming was not formally awarded the degree (in mathematical physics) until June 1928. His dissertation was *A Possible Explanation of the Packing Effect of Helium*. Wasting no time, on August 1, 1927 Deming took a job with the United Stated Department of Agriculture (USDA) Fixed Nitrogen Research Laboratory (as already mentioned) in Washington, D.C. Despite several other offers, Deming, at that time, was particularly interested in studying nitrogen and its effect on crops.

↘ improving trust between workers and supervisors, reducing fear, and breaking monotony all helped to improve worker morale and productivity. It was also found that paying by piecework was self-defeating since workers would never exceed the target set by management for fear that the target would then be increased without a corresponding increase in pay (Gabor, 1990). Deming was not aware of the Mayo experiments at the time he was there.

4. His First Jobs (1927–1946)

Deming was with the USDA from 1927 until 1939 and then worked as a statistical advisor for the U.S. Census Bureau (Britannica home page, 2000). While at the USDA he published some 24 "principal" papers[5]. Most of these dealt with the physical properties of gasses. Once he began working for the Census Bureau, his papers were mostly about sampling, a technique Deming helped pioneer at the Bureau. It is interesting to note that more often than not these papers were jointly published with one or more others, in fact, twelve of the papers published while at the USDA were published with Lola Shupe who, as mentioned, became his wife in 1932 after Anges' death in 1930.

It was Deming good luck to have as have as the Deputy Chief at the Fixed Nitrogen Laboratory a Dr. Charles Kunsman who was also a close friend of Dr. Walter Shewhart of Bell Laboratories in New York. In fact, Kunsman had shared an apartment with Shewhart in Brooklyn when he worked at Bell. Kunsman was quick to see the benefit of having Deming meet and, perhaps, learn from Shewhart. As Deming put it: "He [Dr. Kunsman] arranged for me many visits to Dr. Shewhart, the first one in the fall of 1927. In fact, I would claim that I had the privilege to work closer with Dr. Shewhart than any one had in the Bell Laboratories" (from Kilian, 1992, p. 175). Deming also studied in England under Sir Ronald A. Fisher, one of the "leading lights" of statistical theory at that time. But, as we shall see, it was Shewhart who most influenced Deming's thinking.

Around 1935, Deming became responsible for courses in mathematics and statistics at the USDA's graduate school. It is important to note here that these courses were set up to also accommodate working people and were made available in the evening and, as demand dictated, at various locations through Wash-

5) Dr. Deming's principal papers are listed in Appendix A of Kilian (1992).

ington, D.C.[6] This meant the program drew students from all over the District including, for example, the Census Bureau. Because of this, its influence was quite great; especially for disseminating information about the new and rapidly growing field of the practical application of statistics. Much to his credit Deming saw the merit in inviting some of the best in the field to come and lecture such as Sir Ronald Fisher. However, it was Shewhart whom Deming probably wanted most as a lecturer. As he relates it in Kilian (1992): "The idea came into my head to invite Dr. Shewhart to give four afternoon lectures. He accepted, and spent a year in development of these lectures which he gave in March 1938" (p. 176). With Deming help in making them more understandable to the average person[7], these lecture were later published by the USDA's graduate school in 1939 as *Statistical Method from the Viewpoint of Quality Control*. This book was later republished in 1986 by Dover Press with a Forward by Deming[8]. This book was a follow-on to another book by Shewhart that was also praised by Deming: *Economic Control of Quality of Manufactured Product* (1931, D. Van Nostrand Co., Inc.). This book was also republished (in 1980 by the American Society for Quality Control) with a Deming dedication[9] highly praising Dr. Shewhart for his contribution to the practical application of statistics. One reason Shewhart was so involved in the use of statistics was his association with Bell Laboratories at a time when the U.S. phone system was rapidly expanding into a national system. Shewhart had the vision to realize that only by minimizing variation throughout

6) At the time none of the universities in Washington, D.C. offered such courses.

7) Although recognizing his genius, even Deming admits to having difficulty in understand some of the things Shewhart wrote.

8) See pages 98–101 of Kilian (1992). It is apparent from this forward that Deming considers this book in a class by itself because of the important principles it sets forth about the use of statistics; for example, how control charts can be used to understand and control variation in any process.

9) See pages 94–98 of Kilian (1992).

the system would all the parts work smoothly together. He knew that the correct use of statistics could greatly help to minimize variation.

Having studied under some of the best statisticians, especially Shewhart, Deming was perhaps ready to begin putting what he had learned to use. In 1939 he joined the U.S. Census Bureau and played an important role in how the 1940[10] census was taken. Prior to this time sampling had not been used for the national census but users' demands for more and more information and improved accuracy[11] were making it more attractive. However, according to Nancy Mann (from Voehl, 1995), "many of the users of census data were willing to accept sample results, but some of the old-timers at the Bureau of the Census were opposed to the idea of sampling" (p. 51). After hearing the pros and cons, the Secretary of Commerce decided in favor of sampling. Soon after that Deming received a call from the Bureau's assistant director, Dr. Philip Hauser, and accepted the job of advising on sampling for the 1940 census. Deming's papers dramatically changed to reflect his new field of interest, going from physics to sampling, especially as applied to census work (Myron Tribus, from Voehl, 1995).

Besides advising on the use of sampling for taking the 1940 census, Deming became much involved with improving the accuracy with which the data from the census questionnaires got keypunched onto the millions of punch cards. For example, before, there was 100% inspection of the cards. Although this would seem to ensure accuracy, in fact it did just the opposite[12]. As Gabor (1990) notes:

> ...the pay of the inspectors was linked to the volume of punch cards they processed, which encouraged speedy but not careful inspection. And because some of the inspector were friendly with the keypunch operators, they

10) In America, the census is taken every 10 years.

11) In fact, a national unemployment survey taken in 1937 did use sampling and was able to narrow unemployment estimates down from between "three million to fifteen million" to eleven million (Gabor, 1990).

12) This amounted to a "piecework" approach to pay, one of Deming's pet peeves.

would often overlook errors for fear of getting their friends in trouble. (p. 45)

Instead, Deming did 5% sampling and applied statistical process control (SPC) techniques to determine which operators were "out of control" and needed more training. As can be imagined, "The payoff was a substantial increase in clerical productivity and attendant dollar saving in addition to an earlier release of the population census results" (Homer M Sarashon, from Voehl, 1995, p. 72). Having a major impact, as he did on the efficiency of the census process, was to become typical for Deming as we shall see when we talk about his impact on the Japanese manufacturing industry.

Deming also became very involved with the U.S. war effort after getting a letter from a member of the Stanford University statistics faculty, W. Allan Wallis, in April 1942. Wallis was writing on behalf of himself and some of his statistician colleagues who were wondering if they couldn't do something to help the war effort by offering training in statistics. Deming, in characteristic fashion, quickly responded with a suggestion that courses be set up as soon as possible to train "engineers, inspectors, and industrial people with or without mathematical and statistical training" (Gabor, 1990, p. 55). This resulted in a program of intensive eight-week courses that began in early 1943 and, within two years, had trained almost 2,000 men and women[13]. Some of these then went on to train others resulting in the program training an estimated 31,000 (Nancy Mann, from Voehl, 1995). As Mann said: "The program had a strongly beneficial effect on the quality and volume of war production. Spectacular reductions in scrap and rework were made" (p. 52 in Voehl). Statistical process control charting and the Shewhart Cycle were core features of these courses. The Shewhart Cycle (see Figure 1), has also come to be known as the Deming Cycle — since Deming was most responsible for popularizing it — and the Plan, Do, Study, Act (PDSA)

13) Deming taught 23 of these courses himself.

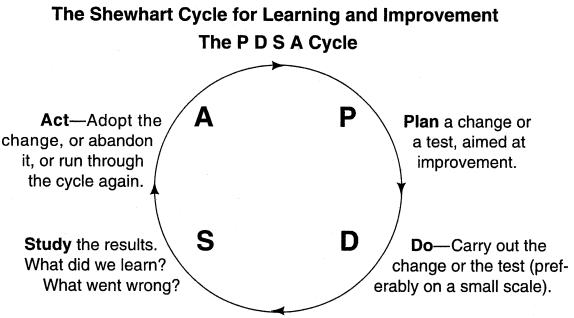

The Shewhart Cycle for Learning and Improvement
The P D S A Cycle
Act—Adopt the change, or abandon it, or run through the cycle again.
A
P
Plan a change or a test, aimed at improvement.
Study the results. What did we learn? What went wrong?
S
D
Do—Carry out the change or the test (preferably on a small scale).

Figure 1. The PDSA Cycle (Deming, 1994, p. 132).

Cycle. Figure 1 shows how the cycle can be used to fairly quickly test a new idea for improving a product or process. Taken in a larger sense, the cycle can be considered a way to think about how to relate your product and processes to customer needs: the *Plan* step would be doing customer research to determine their needs, the *Do* step would be making a product that you believe meets those needs, the *Study* step would be to see how the customer liked the product, and the *Act* step would be making appropriate modifications, based on customer feedback, to make the product even better. As can be see from the "cycle" idea, these four steps are to be repeated over and over to continuously improve the product (or a process).

This training program was probably the catalyst that caused America to finally begin abandoning the some of the traditional ideas of scientific management with its emphasis on getting the most out of the least; that is, a purely financial orientation versus a customer orientation. However, it would take the fear of being overtaken by the Japanese some thirty years later before American business really accepted these new ideas. Nevertheless, at least a core of quality adherents schooled in these Shewhart/Deming ideas came into existence and began working together. Out of this movement came the establishment of the American Society of Quality Control (ASQC) in February 1946 (Nancy Mann, from Voehl,

1995). ASQC changed it name to ASQ (without the "control") a few years ago to the counter the image of a group only interested in "sorting the bad product from the good" versus a more positive, proactive approach (in fact, Deming's approach).

In 1946, Deming left his job at the Census Bureau to go into private consulting practice. He also took up a position as a professor of statistics at the Graduate School of Business Administration, New York University. He was to continue teaching at NYU even after "retiring" in 1975 and becoming emeritus. Had Deming died at this time (1946), he would still have held an important place in the world of science and statistics for his work at the USDA's Fix Nitrogen Research Laboratory and the Census Bureau. He had already developed a reputation as an accomplished statistician and made important contributions to that field. However, at age 46, Deming, if he could see the future, could rightly say: "You ain't seen nothin' yet!"

5. His Early Work with the Japanese (1947–1956)

Deming's Japan odyssey began in 1947 when he was engaged by General MacArthur's Supreme Command of Allied Powers (SCAP) to advise on sampling techniques for a major census to take place in Japan in 1951. The purpose of this census was, among other things, to try to accurately assess the damage from the war so such things as the amount of new housing needed could be determined. It was at this time Deming first came to know and develop a respect for the Japanese. As he was to recall many years later: "The [Japanese] people were hopeful, happy, clean, they looked forward to another day, though they were hungry. Nothing impressed me so much as the striking contrast between the happiness of the Japanese and their devastation" (from Gabor, 1990, p. 76). As opposed to most of the people associated with the U.S. occupation, Deming spent most of his free time away from the American headquarters touring the country

and getting to know the people first hand. He also made friends with several Japanese statisticians and was even made the first Honorary Member of the Japanese Statistical Society. However, all this was but a prelude to what would happen three years later when Deming received an invitation from The Union of Japanese Scientists and Engineers (JUSE) in March of 1950 to return to Japan and teach the application of statistics to quality improvement. JUSE grew out of a group formed during WWII to help with the war effort and, after the war, to help with reconstruction. Until about the time of Deming's involvement with it, it was little more than a social group that "sat around, drank sake and ate rice, talked: [had an] aim without a method" (Deming quote, from Kilian, 1992, page 20).

Even before Deming returned in 1950, there had been considerable effort by General MacArthur's headquarters staff to improve the quality of Japanese production. In particular, the Civil Communications Section (CCS) of that staff had been charged with "restarting the communications equipment manufacturing industry quite literally from the ground up" (Homer M. Sarasohn, from Voehl, 1995, p. 73). As part of that effort, a seminar was established for senior industry executives who were, in turn, to give the same course to their subordinates. These CCS lectures included a 36 page lesson on quality by Homer Sarasohn, an American electrical engineer who had come to Japan in 1945 to work with SCAP on rebuilding the Japanese communications industry. This lesson set forth many of the ideas Deming believed in and, indeed, had its genesis in the work of Shewhart since most of those involved in delivering the quality control lectures were former employees of Bell Laboratories or Western Electric. For example, according to Gabor (1990), "The course emphasized the importance of controlling variation as well as the correlation between improving production processes and building high-quality products" (p. 78). Although the Japanese were ready to accept these relatively new ideas, especially at a time when "made in Japan" was becoming synonymous with junk, there were some misgivings that these lectures

were too technical and difficult to understand. In the meantime, JUSE was making some progress, beyond just talking, about how it could help with reconstruction and, in September, 1949, sponsored its first quality control seminar. Also, about this time JUSE learned that Deming would be revisiting Japan in 1950. Having studied whatever they could lay their hands on about quality control, especially from America, JUSE was becoming very familiar with people like Shewhart and Deming. Acting under the close regulation then existing during the occupation, JUSE obtained CSS's permission to invite Deming to give a lecture course "to the Japanese research workers, plant managers and engineers who had just started learning or taking an interest in quality control methods" (Kenichi Koyanagi, from Kilian (1992), p. 31). Again, in typical fashion, Deming quickly responded to the invitation and offered several suggestions for how such a lecture series could be best implemented.

The first of a dozen lectures began on June 16, 1950 with a standing room only crowd at Tokyo University. As described by Gabor (1990), "...Deming was overwhelmed by his reception and by the level of knowledge exhibited by those who came to hear him speak. More than five hundred people attended, including government officials, professors, and students" (p. 80). The lectures were given in several locations from Tokyo all the way down to Kyushu. However, Deming recalled well the way his ideas about such things as using control charts to understand and control variation had vanished from American management soon after the war ended ("there was nothing — not even smoke"). Therefore, he knew it would be important to talk with top management if what he had to say was to make a lasting difference.

The then president of JUSE, Ichiro Ishikawa, was also chairman of one of Japan's most powerful business groups: *Keidanren* (the Japanese Federation of Economic Organizations). With Ishikawa's help, Deming was able to meet with 21 of the top managers in Japan on July 13. This dinner meeting was a key turn-

ing point for Japanese industry. As Deming put it: "I think they were impressed, because before the evening was over they asked me to meet with them again..." (from Walton, 1986, p. 13). At subsequent meetings Deming continued to tell these and other managers that they *could* make good quality products if they would follow some of the common sense things he was advocating.

> I said 'You don't need to receive the junk that comes in. You can never produce quality with that stuff. But with process controls that your engineers are learning about — consumer research, redesign of products — you can. Don't just make it and try to sell it. But redesign it and then again bring the process under control...with ever-increasing quality.' (from Walton, p. 15).

It was during one of these meeting with managers that Deming began using his now famous system diagram shown in Figure 2. This diagram shows the

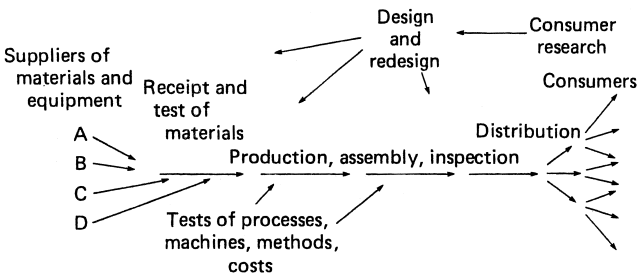


Figure 2. Production viewed as a system (Deming, 1986, p. 4).

importance of thinking of production in terms of a system and how good quality starts with the consumer and requires a close relationship with your suppliers.

Deming told the Japanese managers that if they followed his recommendations "they would capture markets the world over within five years." In fact, it began happening within four years!

One might ask why the Japanese managers even listened to Deming, a foreigner and, at that time, probably someone they had never heard of. It was prob-

ably the confluence of several factors such as: (1) the real need for Japan to find a way to improve its exports and dispel the bad "made-in-Japan" image, (2) the connection Deming had made through his association with JUSE and, in particular, its then president, Ishikawa, (3) the respect Deming showed the Japanese at a time when their self-esteem was probably very low, and (4) the interest Deming took in the Japanese culture[14].

Following this significant event (Deming getting through to the top managers in Japan), Deming returned to Japan in 1951, 1952, 1955 and 1956 as a consultant and teacher to aid JUSE's efforts at continuing the work he started in 1950 (Kilian, 1992 & Aguayo, 1990). Another significant event was the establishment of the Deming Prize in 1950 by JUSE to be awarded annually to persons and companies for excellence in the research, dissemination, and application of statistical quality control methods. Winners are awarded the Deming Medal, a silver medal with (a young) Deming in profile. The following is written under Deming's likeness: "The right quality & uniformity are foundations of commerce, prosperity & peace"; words that would seem to epitomize Deming's vision for a better world through continuous improvement. Winning the prize has turned out to be considered a very high honor indeed and, as Gabor (1990) tells it, the list of recipients "reads like a *Who's Who* of Japanese companies that have dealt serious blows to U.S. industry.... Winners include Toyota, construction equipment maker Komatsu, copier manufacturer Ricoh, the diversified Toshiba Corporation, tire manufacturer Bridgestone, and Matsushita Electric Industries Company" (p. 93). It was not until 1987 that the U.S. established its equivalent to the Deming Prize, the Malcolm Baldrige National Quality Award.

Deming himself was awarded the American Society for Quality Control's

14) As Walton, 1986 writes: "He delighted in invitations from Japanese hosts, and he sought to familiarize himself with the culture, frequently attending Kabuki theater and Noh plays, exploring markets and shops, visiting temples and shrines" (p. 11).

(now the American Society for Quality) Shewhart Medal in 1955. This award, given almost since the founding of ASQC, is awarded for having "demonstrated the most outstanding technical leadership in the field of modern quality control, especially through the development to its theory, principles, and techniques..." (ASQ home, 2001)[15]. It must have made Deming feel especially proud to receive an award dedicated to his old friend and mentor, Dr. Shewhart.

There is not much written about Deming during this time after his landmark visit in 1950. Kilian's (1992) Appendix A (under International Activities) shows him doing consultant work in Germany and Mexico during the early to mid-1950s. He is also shown as being an "exchange scholar to Germany, 1952 and 1953." Also during this period he continued to publish, producing several scholarly papers on statistical methods and sampling.

6. The Interim Years (1956–1980)

This time in Deming's life might even be called his "hidden years" since there is not much written about his life. However, according to the list of his Principal Papers (Kilian, 1992, Appendix A, pp. 346–356), he wrote and published a lot: 58 papers. Figure 3 shows a very general breakdown of the topics of these paper. The fact that almost half of these papers dealt with specific applications of statistics shows that Deming was very much involved with the real world; certainly an indication of some of the very practical work he did in those days for improvement of existing practices. He often collaborated on these papers; 16 of the 58 were co-authored. The range of topics also shows how diversified were his interests.

One of the more noteworthy of these papers is the article "What happened in

15) ASQ has also awarded a "Deming Medal" since 1996 "to those who, like Dr. Deming, have successfully combined the application of statistical thinking and management so that each supports and enhances the other, thus leading to quality in products and services" (ASQ home page, 2001, under ASQ Awards and Scholarships).

Topic	Num-ber	per-cent	Example
Use of theory	1	2%	On the use of theory (1956) #94*
Some specific application of statistics	27	46%	On some statistical aids towards economic production (1975) #149
Sampling (in general)	6	10%	On some new methods of concepts in sampling (1959) #105
Principles of professional practice	5	9%	Principles of professional statistical practice (1965) #104
The general application of statistics	12	20%	On the use of judgement-samples (1975) #153
Statistical quality control in Japan	5	9%	Recent advances in the statistical control of quality in Japan (1964) #121
The general application of probability	1	2%	On probability as a basis for action (1975) #145
Evaluation	1	2%	The logic of evaluation (1975) #148
Total	58	100%	

Figure 3. A general breakdown of papers published by Deming during the period 1956–1980 (source: Kilian, 1992). *Number assigned to the paper in Appendix A.

Japan?" published in *Industrial Quality Control* in August 1967. Here is the article's purpose as stated by Deming:

> The purpose of this article is to offer some observations on the causes of success in Japan, from the viewpoint of statistical control of quality, with the thought that energetic application of statistical techniques in other parts of the world, including the United States, might have healthy impact. (Kilian, 1992, p. 74)[16)]

The article provides the outline of what has come to be known as the Deming philosophy of management based on his now famous Fourteen Points and system

16) This quote is from a reprint of the article which appears in Kilian as Chapter 7. According to Kilian, a form of the article appeared in *Industrial Quality Control.*

of profound knowledge. In the article he discusses nine features of quality in Japan, defines statistical control of quality, describes an early version of the PDSA Cycle (see Figure 1 above), and discusses the difference between special and common causes of variation. For the serious student of Deming, the article provides a valuable historical insight into his ever evolving thinking.

It is also interesting to note that Deming, in that same article, specifically singles out the United States as a country that might benefit from his ideas; something that would not happen for another 13 years. Indeed, until the American broadcasting company, NBC, aired a special on quality in 1980, Deming remained in relative obscurity in the U.S. However, as the above described list of papers testifies to, Deming remained busy. According to Walton (1986) "he developed a large clientele in the trucking industry for whom he designed most of the rate structures now [1986] in existence" (p. 16). Walton goes on to give us a some inkling of what his family life was like:

> His varied assignments kept him on the road a great deal. The family seldom took vacations[17], but on weekends they would go for bike rides or day trips. On Saturday morning, his youngest daughter, Linda, would wake to the sound of her mother at the calculator. Not only did Lola Deming perform the calculations for much of her husband's work, she edited his manuscripts as well and traveled with him several times to Japan. Meanwhile, she continued to work for the federal government until her retirement in 1967. (pp. 16–17)

Perhaps the single most important event in this period of Deming's life was being awarded the Second Order Medal of the Sacred Treasure by the Emperor of Japan in May 1960. This is the highest award Japan can bestow on a foreigner.

17) Although he knew how to have fun, Deming was definitely not a "vacation" person. He seemed to take delight in getting up each day and doing something new and interesting and learning from it.

In Deming's own words:

> I can say nothing ever pleased me so much as this recognition. The citation stated that the Japanese people attribute the rebirth of Japanese industry, and their success in marketing their radios and parts, transistors, cameras, binoculars, and sewing machines all over the world to my work there. (from Kilian, 1992, p. 58, and, in turn, from Deming's journal, *Sixth Trip to Japan*)

Besides this trip in 1960 to receive the medal, Deming made a three-week visit to Japan in 1965. I think this was especially important to Deming because, by this time, Japanese industry had begun to definitely change due to the implementation of his ideas. To sort of commemorate this visit, Deming wrote a 65 page account of it which is a delightful look at many facets of the Japanese culture as it existed at that point in time. Here is Deming's preface to *My Seventh Trip to Japan*[18]:

> Unexpurgated, unmeditated, unimaginative. Being a candid day-by-day account of the incredible experiences of a weary statistician, working in Japan, in continued admiration and amazement of the ability of the Japanese people to be so charming along with their dazzling attainments. Typed from original notes written on the spot. Illustrated with the author's own snapshots.

As the new decade of the 1980s dawned, Deming's days of relative obscurity were about to end. Let us now fast-forward to June 1980.

7. The "If Japan Can, Why Can't We?" Era (1980–1987)

On June 24th, 1980 NBC aired a documentary called "If Japan Can, Why Can't We?" What prompted this program? Well, I often quote humorist Dave Barry (1992) who, discussing the American automobile industry's reaction to the loss of market to Japanese small cars in the 1970s, says:

> At first the American auto manufacturers resisted making small cars for aes-

18) The account is reproduced as Chapter 15 in Kilian (1992).

> thetic reasons: Smaller cars sell for less money. But finally, feeling the pinch from foreign competition, the U.S. auto makers decided that, OK, they would make small cars. But not just *any* small cars: No, they would make *really bad* small cars. The shrewd marketing strategy here was that people would buy these cars, realize how crappy they were, and go back to aircraft carriers. This strategy resulted in cars such as the Ford Pinto, the Chevrolet Vega, and the American Motors Gremlin — cars that were apparently design during office Christmas parties by drunken mail-room employees drawing on napkins; cars that frequently disintegrated *while they were still on the assembly line*. (pp. 12–13)

In other words, America, for the most part, had abandoned its brief enthusiasm with improving the quality of its products which had been crucial for success in WWII. Instead, operating in a seller's market following the war, the American "business model" was simply "sell, sell, sell." As Gabor (1990) puts it, "the marketer's job is to convince the customer to buy no matter what his needs, no matter what the suitability of the product" (p. 56). And, it might be added, no matter what the quality. As demonstrated by the above quote from Barry, by the 1970s it was "made in America" that was becoming a joke; indeed, the tables had turned with the Japanese taking away ever more of the market share from America. Not only were the Japanese making better cars, but better televisions, better motorcycles, better stereos, better you name it! It was this situation that, in the late 1970s prompted NBC to consider producing a documentary that would attempt to answer the question: If Japan can, why can't we (America)?"

Clare Crawford-Mason, the producer of the NBC documentary, was looking for a good story that would have program audience appeal but there didn't seem to be any story to tell. "She found herself conducting interviews with economists that were about as exciting as 'watching paint dry'..." (Walton, 1986, p. 18). Then, one day, talking with the Dean of American University's Business

School (Washington, D.C.), Herbert Striner, she was put on to "an elderly man who lived up the street... ...who had helped the Japanese repair their economy" (Crawford-Mason, 1992). She had no trouble getting an appointment and met with him in his two-room office in the basement of his home. As she later recalled:

> We talked for almost two hours, and I didn't understand much of anything he said. I caught the phrase that he had "taught the Japanese to work smarter, not harder" and that sounded good. But I couldn't seem to find out what he had taught them. It was to take me 10 years. (Crawford-Mason, 1992)

Indeed, she couldn't believe anyone who had done what Deming had and lived only six miles from the White House could be so unknown. Checking with her Tokyo office, she confirmed that Deming was on a par with Douglas MacArthur in Japan. "So I returned and talked to Dr. Deming some more. He was... pleasant, charming but oddly vehement. A question that seemed reasonable to me would upset him. 'No, no, no!' he would almost roar."

Fortunately, Deming had recently been working with the Nashua Corporation, in Nashua, New Hampshire, a maker of, among other things, carbonless paper.[19] By the time the documentary was produced, Nashua had had enough time to begin seeing some successes from the use of Deming ideas. The famous documentary aired on the evening of June 24, 1980. The last 15 minutes were about Deming and his work with Nashua. After the CEO of Nashua told how much their productivity had improved and how they were saving millions of dollars, Deming said: "If you get gains in productivity it is only because people work smarter, not harder, that is total profit, and it multiplies several times" (from Walton, 1986, p. 19). When asked if the methods that were working in Japan could work in the United States, Deming said "Why of course, we could" but concluded we didn't because "There's no determination to do it. We have no idea what, what's the

19) Nashua had found out about Deming through a Japanese company it was partnering with at that time, Ricoh, a maker of copiers.

right thing to do, have no goal."

I mentioned earlier that Deming's meeting with 21 of Japan's top managers on July 13, 1950 was a key turning point for Japan. The broadcast of "If Japan Can, Why Can't We?" was a key turning point for America. As Walton (1986) described it:

> The next day, the telephone rang relentlessly in Dr. Deming's basement office. "We were bombarded with calls," recalled Cecelia Kilian[20]. "It was a nightmare." Many of the callers sounded desperate. "They have to see him tomorrow, or yesterday, or their whole company will collapse. (pp. 19–20)

Deming was soon in demand by some of the biggest companies in America. For example, he eventually became a regular consultant to the Ford Motor Company It is fair to say Deming helped Ford do a complete turn around from the days when Whiz Kids like Robert McNamara held sway and, as Gabor (1990) puts it, "Cutting costs, not improving automobiles, was the mission of the day" (p. 131). Perhaps the best example of this turn around was the Ford Taurus program. "The car marked the first time market research was conducted before product development began. The project pioneered a new approach to team work and planted the seeds for Ford's benchmarking[21] system" (Gabor, p. 146). Indeed, Ford's attempt to find out what the customer wanted (one of Deming's basic tenets) resulted 1,401 "wants" for the new Taurus of which more than 700 were incorporated. For example the oil dipstick was painted a bright yellow to make it easier to read and a net was placed in the trunk to hold grocery bags upright (Austenfeld, 1995). These may be little things but they mean a lot to customers and showed that Ford really does care about them. This "Demingism" of Ford

20) Deming's secretary.

21) Benchmarking is when a company seeks out other, highly rated, companies that have similar processes to learn how to improve their own processes. See Austenfeld, 1996 for a complete explanation of benchmarking.

paid off. In 1992 the Taurus become the best selling car in America, an honor that had been held for some time by the Honda Accord. And Ford moved into second place for U.S. and world automobile sales (Austenfeld, 1995).

Deming was not always easy to work with. Gabor (1990) describes one of his first meeting with some Ford executives:

> Instead of delivering a slick presentation on how the automaker could solve its quality problems — the sort of thing that became the stock in trade of U.S. quality "experts" during the 1980s, Deming questioned, rambled, and seemed to take pleasure in making a laughingstock of this listeners. (p. 126)

Deming's approach was to ask an executive what his job was, but he didn't mean the obvious answer of, for example, "director of product assurance"; he was trying to get the executive to think in terms of facilitating quality. Unfortunately, his abrasive, and somewhat obscure, approach didn't set well with the managers. Perhaps it was Deming's eventual friendship with Ford's then chairman, Donald E. Petersen that allowed the relationship to continue and Ford to benefit therefrom.

In any event, Deming, *then 80* years old, undertook an even more active schedule. Walton (1986) gives us some idea of the whirlwind life he led:

> He was on the road constantly, not only in the United States but abroad. He made trips regularly to London, South Africa, and New Zealand, where he had clients. Mrs. Kilian bought shuttle ticket to New York twenty at a time. She saw less of him, but her work did not diminish. One day she heard from him in four states. He called as many as three or four times a day, sometimes dictating portions of his book from an airport telephone booth. (p. 20)

Deming also began giving his famous four-day seminars at about this time and continued to teach at NYU. When his daughter, Linda, tried to get him to slow down, he said "Thank you for caring, but this is what I need to be doing. I went so many years without people really knowing what I had to say" (from Walton, p. 21).

In June of 1986 Deming's wife, Lola, died from heart failure; she had been in considerable pain over the last few months. She had also suffered from memory loss in those latter years. In Chapter 18 of Kilian (1992), Deming recalls many of his fond memories of Lola and her last days. They had been married for 54 years. Chapter 18 ends with a beautiful poem by Deming called simply "To Lola."

In 1986, Deming's classic work, *Out of the Crisis*, is published. It presents all his ideas for quality improvement as they had evolved up to that point in time. Another major book, *The New Economics*, would be first published in 1988. As a fitting close to this portion of Deming's life, in 1987 he was finally officially recognized for his work in America by being given the National Medal of Technology award by President Reagan.

8. The Final Years (1988–1993)

These last years of Deming's life were marked by a continuing whirlwind of activity. Deming truly seemed to thrive on work and, even up to his last days, was busy as ever with his four-day seminars[22], teaching, consulting, and revising his latest book, *The New Economics*. In fact, the latter was republished about the time of his death, incorporating all the revisions he had made; primarily in Chapter 4, "A System of Profound Knowledge" (for more on this system, see that chapter in Deming, Austenfeld, 2001, and section 9 of this paper). According Appendix A in Kilian (1992) he was still holding professorial positions at both NYU and Columbia University in 1992. She also notes that his four-day seminars were continuing with an annual attendance of about 20,000.

Deming also was working closely with several people who were writing books

22) Deming's four day seminars are still presented. According to the W. Edwards Deming Institute home page (2001) the seminar "blends footage of Dr. Deming presenting his theories with active participant exercises, discussions, working groups, and presentations by experts in Deming's theory of management." One of Deming's last seminars, in July 1992, was videotaped and is available from the Deming Institute.

about him. For example, Mary Walton, who had already published *The Deming Management Method* in 1986, went on to write about the success of several companies that were using Deming's principles (*Deming Management at Work*). This book was published in 1990. Talking about the support she received:

> Dr. Deming made good on his pledge of support. I attended additional seminars and traveled with him to several clients, including Ford. He loaned me a mimeographed copy of his diaries from Japan and provided introductions to people he though would be helpful. He also granted me his scarcest resource: time. (Mary Walton, from Voehl, 1995, p. 11).

Deming also took the time to go over every part of Walton's first book which dealt in detail with each of his famous Fourteen Points (see Appendix A). Deming also gave unstintingly of himself during the writing of Walton's second book, helping her find and describe those companies that by then had begun to use his ideas to their advantage.

Andrea Gabor (*The Man Who Discovered Quality*, 1990) and Rafael Aguayo (*Dr. Deming: The American Who Taught the Japanese About Quality*, 1990) both acknowledge their debt to Deming for his time and patience in helping them write about him and his teachings.

Not long after his death, Frank Voehl put together a book called *Deming: The Way We Knew Him*. Structured around Deming's Fourteen Points, it is more a tribute to Deming than an exposition about the Points. Each chapter includes a section written by someone who was closely associated with Deming. Here are some excerpts from those writings to help us better understand the Deming of those final years:

Myron Tribus, a well-known quality consultant

> In the early 1980s, Dr. Deming often said, "I lit many fires, but they all went out." Today he can say that no more, because there are people all around the globe who study his books, watch his video-tapes, and follow his

teaching in an almost religious way.[23] (p. 32)

Nancy Mann, author of The Keys to Excellence: The Story of the Deming Philosophy (1987)

From the late 1980s until the end of 1993, Dr. Deming gave the world an example of never-ending improvement in his own thinking and his continuous learning. In *The New Economics*, a seminal work published a few months before his death, Dr. Deming summed up his vision of the world now guided by the ability of the human mind to understand the benefits of cooperation and the desirability of what he defined as optimization. (p. 57)

Hana Tomasek, consultant and, according to Voehl, "one of the leaders of the TQM revolution in Eastern Europe"

Even as he was dying, Dr. Deming was thinking of others. It was his request that any memorials be made in the form of blood donations to Sibley Hospital in Washington, D.C. While I was donating blood, I learned that Dr. Deming had told his nurse, "Life is so fragile. Let's not be afraid to say 'I love you.'" (p. 90)

Lisa McNary, one of Deming's last graduate students (began working with her in March 1992)

I learned a lot working with Dr. Deming, but I also remember laughing a lot. That combination of continuing to learn and laughing must have been one of Dr. Deming's secrets to a long life. If I had a dollar for every time I was asked, "how did you manage to get Dr. Deming on your dissertation committee?" — all my graduate work would have been fully financed. No one ever believed my pedestrian answer, "I just asked him." (p. 124)

Louis Schultz, consultant and "Deming disciple since the early 1980s"

Dr. Deming conducted his famous four-day seminars well into his nineties,

23) The Deming Electronic Network's home page (2000) lists the many international and U. S. Deming associations.

beginning them with, “Why are we here? To learn and have fun.” Much of his teaching... ...concerns understanding psychology, variation, systems, and theory of knowledge[24]. These headings, however, are only that — the tips of icebergs which must be viewed beneath the surface to be truly comprehended. “If you have not produced the data, you cannot understand (or use) it,” Dr. Deming told his audiences. “You need to understand the production of the data.” (p. 152).

I could probably go on and on with fond remembrances and tributes to Deming but these give you some idea of the high esteem in which he was and still is held. After an unbelievably active and productive life, Deming was finally struck down by prostrate cancer that had spread to his lungs and bones. Even to the end he “got up out of his hospital bed each week to fly, in a hospital plane and with attending nurses, to his conferences at Ford or seminars around the country” (May Lum Gould, from Voehl, 1995, p. 41). He died on 20 December 1993; a loss felt round the world. In fact, the headline of the Japan Times’ (1993) report shows how much he is still revered in Japan: “‘God of quality control’ W. Edwards Deming dies.”

The last chapter in Voehl contains the homily delivered by the Reverend Father August Peters at Deming’s funeral requiem mass. The homily uses Deming’s life as a model for the rest of us. As Voehl says in the same chapter: “His religion was a very strong part of the fabric of his life. He composed hymns, sang in the choir, said his prayers, and followed the Golden Rule as best a man could” (p. 157). Near the end of his homily, Reverend Peters notes that Edwards Deming never forgot *who he was* and *Whose he is*:

W. EDWARDS DEMING

child of God,

friend to man,

24) Indeed, these four things together comprise Deming’s system of profound knowledge.

faithful brother in Christ.

9. Deming's Basic Teachings

These are Deming's basic teachings:

- The chain reaction: quality, productivity, lower costs, capture the market
- Productivity viewed as a system
- The Fourteen Points for transformation of management
- The Seven Deadly Diseases
- The Plan, Do, Study, Act (PDSA) Cycle
- The Red Bead experiment
- The Funnel experiment
- The system of profound knowledge

The chain reaction: quality, productivity, lower costs, capture the market. This teaching is illustrated by Figure 4. With improved quality, productivity increases and costs go down. Therefore, you are able to sell a better product for less and capture more of the market. This means that you will stay in business, grow, and be able to provide "job and more jobs."

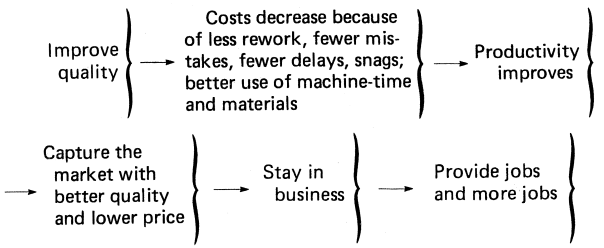

Improve quality
Costs decrease because of less rework, fewer mistakes, fewer delays, snags; better use of machine-time and materials
Productivity improves
Capture the market with better quality and lower price
Stay in business
Provide jobs and more jobs

Figure 4. The chain reaction: quality, productivity, lower costs, capture the market (from Deming, 1986, p. 3).

Productivity viewed as a system. Figure 2, repeated here, shows this early teaching by Deming used when he first talked with Japanese managers in 1950.

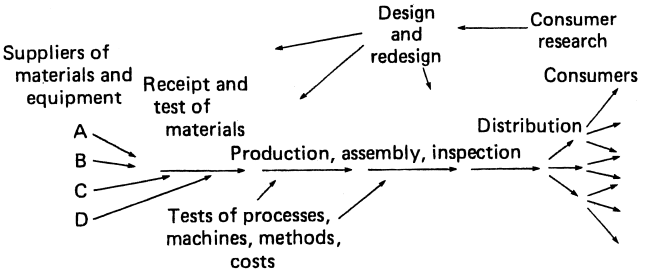


Figure 2 (repeated). Production viewed as a system (Deming, 1986, p. 4).

This idea of considering the supplier and customer as part of your production system was quite revolutionary at the time and, even, today, is not practiced as much as it should be. Too often the supplier and customer are thought of as separate and even "competing" entities from whom maximum advantage is to be obtained by hook or by crook. Despite all the efforts to inculcate systems thinking into management practices over the last thirty to forty years, too many managers still don't think this way.

The Fourteen Points for transformation of management. Even as early as 1950, in Deming's lectures to the Japanese, we can see elements of these points with his down playing of inspectors and emphasis on process improvement on the factory floor. Those lectures also stressed the ultimate responsibility of management for quality and for determining customer needs. They also said that it was important to view "quality concepts as part of a holistic new management philosophy in which *every member* of the organization must play a part [emphasis added]" (Gabor, 1990, p. 81). When Deming began working to improve the quality of American companies in 1979, we can see his Fourteen Points further evolving. For example, in the seminars he gave to Nashua of "If Japan Can, Why Can't We?" fame, some of the things Deming told them to do were: "work closely with just a few suppliers, foster interdepartmental cooperation, work toward eliminating inspections, and build a relationship of trust with workers"

(Gabor, p. 114). See Appendix A for Deming's Fourteen Points along with brief commentary on each..

The Seven Deadly Diseases. See Appendix B for Deming's Seven Deadly Diseases (taken from Walton, 1990). For a fuller discussion of these "diseases" see the epilogue of Voehl (1995).

T*he Plan, Do, Study, Act Cycle*. The Plan, Do, Study, Act (or PDSA) Cycle has already been discussed in section 4 of this paper. See Figure 1.

The Red Bead experiment. This experiment became an important part of Deming's four-day seminars and he used it to illustrate several points about bad management practice. For a full description of the experiment, see Chapter 7 in Deming's *The New Economics* (1994). Briefly, however, here is the experiment: Deming gets six "Willing Workers" from the audience along with two "Inspectors," one "Inspector General," and a "Recorder" — all volunteers. He then assumes the role of the foreman and carefully explains the job. The job is to produce only white beads from a supply that contains both white and red beads; in fact, 20 percent of the beads are red. The foreman goes on to tell the Willing Workers *exactly* how they are to "produce" the white beads using a paddle that is dipped (in a precise manner) into the incoming supply of beads. (Note that the foreman doesn't care if the workers have a better idea for the production process.) The paddle holds 50 beads, one day's workload. After the names of the workers are recorded by the Recorder, they are put to work with each one following the foreman's procedures (exactly, or they are reprimanded or even fired!). The two Inspectors independently confirm the count of defects (red beads) with a final confirmation by the Inspector General. The count is duly recorded after that person's name.

As the workers inevitably produce some red beads, they are berated by the foreman and urged to do better. When one of the workers does better than the rest, he or she is given a merit increase in pay. This goes on for "three days" and,

finally getting desperate, the foreman declares the fourth day "Zero Defects Day" with posters and much fanfare. He also gives the Willing Workers notice that unless things improve on the fourth day, the plant will be closed down. Of course nothing changes but the foreman announces the "good news" that a member of management has come up with this great idea of keeping the "best" workers. So the three workers who have produced the least white beads are fired and the three "best" workers go to work on the fifth day. Again, the results are disappointing so the plant is closed after all with much frustration and bitterness among all.

The main point of all this elaborate staging of the experiment is to drive home one of Deming's most basic ideas: most performance problems are due to the system and only management can change the system. The workers, as their "Willing Worker" name implies, were not only willing but *wanted* to do a good job; the system simply would not let them. This is what Deming means by removing barriers that rob the worker of pride of workmanship (see Appendix A, Point 12b). This experiment also demonstrates Deming Point 11b: *Eliminate management by the numbers, numerical goals. Substitute leadership*. Appendix C, taken from a recent article in *Quality Progress*, the American Society for Quality's (ASC) monthly magazine, is a dramatic example of just how destructive managing purely "by the numbers" can be.

The Funnel experiment. For a full description of this experiment, see Chapter 9 in Deming's *The New Economics*. The purpose of this experiment is to show the danger of tampering; that is, making changes to a process without first making a careful study of the possible causes of the variation in that process. The experiment requires an ordinary funnel, a marble that will drop through the funnel, and a table a short distance below the funnel onto which the marble will drop. Preferably the table is covered with a cloth so the marble won't roll too far and a target from which the marble's final resting place can be measured.

The funnel is aimed at the target and the marble is dropped thorough the fun-

nel 50 times. Each final resting position of the marble is marked. This technique is called “Rule 1.” This results in a scatter diagram about the target. Of course we don’t want a “scatter” but rather for every drop to be right on or very close to the target. So we begin tampering with the system by trying some different “rules.” Rule 2: Move the funnel after each drop an equal and opposite distance *from its last position* as the resting place of the last drop; that is if the marble’s resting place was 30 cm northwest of the funnel’s last position, move the funnel 30 cm southwest of this position and make the next drop. This results in even greater scattering.

Rule 3: Do the same thing as you did for Rule 2 except use the target as the reference point. That is, if the marble comes to rest 30 cm northwest of the target, move the funnel 30 cm southwest *of the target*. The results are even more disappointing.

Rule 4: After each drop, set the funnel over the spot where the marble came to rest and make the next drop. Again, the situation becomes even worse and, as Deming puts it, “the marble will eventually move off to the Milky Way.”

The moral of the experiment is that before making changes to a process to reduce variation, you need to study the process and, usually, make substantial changes (not just a simple movement of the funnel in this case). For example, you might move the funnel closer to the table or use a coarser tablecloth to reduce the amount of scattering. Too often changes are made to a process based on some one-time event, such as a machine out of adjustment. However, since the cause of the problem was not accurately determined, the problem will continue and, because of the unwarranted change, may become even worse.

The system of profound knowledge. Chapter 4 in The New Economics (1994) explains Deming’s system of profound knowledge. See also Austenfeld (2001). The explication of this system seemed to be Deming’s swan song — something that tied together all of his former teachings into a neat package that consisted of

four elements: (1) ap*preciation for a system*, (2) *knowledge about variation,* (3) *theory of knowledge*, and (4) *psychology*. It is important to note that these four elements must be used together to truly affect the transformation of management they are meant to affect. Let's briefly consider each of the elements.

(1) *Appreciation for a system.* According to Deming, "A system is a network of interdependent components that work together to try to accomplish the aim of the system" (Deming, 1994, p. 50). Figure 2 (already mentioned) is an example of a generic production system but a system could be anything from a simple process to a whole country. Here are the most important points for appreciating a system[25]:

- *It must have an aim.*
- *The performance of each component must be judged on the basis of its contribution to the aim.*
- *The system must be actively managed.*
- *Recognizing the importance of the system to individual performance.* Recall the main point of the Red Bead experiment.

(2) *Knowledge about variation.* When we talk about variation, we are usually talking about variation in a process or system; for example, a process for making steel rods with a certain diameter and length. Another example would be a system for transporting people by air (airplanes, airports, airline employees who manage and operate the system, etc.). Here one variable might be arrival times. Airlines that pride themselves on having good "on-time" arrival performance will seek to reduce variation in that system. Here are the important points for this element.

- *Variation is normal.* What we usually wish to do is minimize it. For example, one of the keys to MacDonald's success is its almost religious adherence to

25) I will comment on these points only when it seems a fuller explanation is needed.

strict standards of quality for its materials, production, and service. No matter where you go in the world, your Big Mac will be essentially the same.

- *There are two kinds of causes of variation.* This principle came out of the work of Walter Shewhart and is another basic tenet of statistical quality control. For example, suppose you wish to control the variation of the diameter of the steel rod just mentioned. The first step is to let the production process run undisturbed for a while and take random samples of the output. In this case you would randomly sample the rod diameter and record this data. Using certain formulae you can then determine upper and lower control limits for your process. As you take further samples, any falling within the control limits are OK; any falling outside these limits indicate some special problem such as a machine getting out of adjustment. This type of cause is called a *special* cause of variation and can usually be fairly easily detected and corrected, even by trained workers. The other type of cause is called a *common* cause and is a cause that is inherent in the process itself; for example, poor quality materials as we saw in the Red Bead experiment. Of course only management can make the decisions necessary to reduce the common causes. Reducing the common causes will bring the upper and lower control limits closer together.
- *The importance of a stable system.* This relates to what has just been said: before the common causes of a system can be tackled, the system must be allowed to run undisturbed (no tampering!) for a while. Then management can consider whether it is worth the cost of eliminating any of the common causes.[26)]
- *Why managers should not blame their workers for poor performance.* See

26) The variation in any process due to common causes can be reduced. The question is, is it worth it? Buying a super-expensive precision production machine may be doing much more than necessary to meet customer requirements.

the discussion of the Red Bead experiment above. In that case the variation in the red beads was due to the common cause of poor incoming materials.

- *Don't tamper with the system when trying to reduce variation.* See the discussion on the Funnel experiment above. Plotting the performance of the system/process is the first step in not only detecting causes of variation but in coming up with possible solutions and testing those solutions in a systematic way.

(3) *Theory of knowledge*. For this element, Deming stresses the need for managers to both understand how knowledge is advanced and to lead such efforts within their organizations. The important points are:

- *Theories need to be developed and tested to advance knowledge.* The theory could be as simple as which of two methods is best for training certain skills.
- *The plan-do-study-act (PDSA) cycle should be used to systematically develop theories (predictions) and test them.* See Figure 1 in section 4 of this paper.
- *Learning should be continuous and organization-wide*. Deming is big on learning: Point 6: *Institute training on the job* and Point 13: *Institute a vigorous program of education and self-improvement.*

(4) *Psychology*. The final, and perhaps in a way most important, element in the system of profound knowledge is about people; that is psychology. In fact, it is only through people that things are accomplished. We can have the best system, know all about variation and knowledge, and still not have a successful organization if we don't understand people; particularly what motivates them to want to do a good job. These are the important points about this element:

- *People are different.* As Deming (1994) says, "A manager of people must be aware of these differences, and use them for optimization of everybody's abilities and inclinations" (p. 108).
- *Rely more on intrinsic motivation rather than extrinsic motivation*. Of course we still need extrinsic motivation. It would be unusual for someone to work

without pay. However, the goal of mangers should be to take advantage of the people's innate desire to do a good job.

10. A Profile of the Deming Personality

Deming truly was a remarkable person. However, merely watching a video of him conducting one of his four-day seminars, one would not be impressed. He is not polished, moves rather slowly, and at times seems to be unsure of himself[27]. But as you continue to watch the seminar and Dr. Deming you sense something else: a person who is convinced he knows something that is very important and he wants to share it with as many others as possible. The stern look in his eyes tells you that he is serious when he says something like "What is a leader?" But what kind of a person was this Dr. Deming, really? Let's look at him from the various roles he held: as a student, as a family man, as a teacher and academician, as a consultant, as a friend, and simply as a person.

As a student. Deming was eager to learn. He quickly earned his bachelor's, master's and doctor's degrees. But beyond that, he was a life-long learner. He was always open to new ideas and would jot these down for later use — always with attribution — in his writings and presentations. "His happiest moments seem to have been when he learned something new or made some new connection between data or ideas" (Clare Crawford-Mason and Lloyd Dobyns, from SPC Press home page, 2000, under SPC Press tribute).

As a family man. Deming was a devoted family man. Chapter 17 in Kilian (1992) is a beautiful set of recollections by Deming about his first (and adopted) daughter, Dorothy. "I think that a father and daughter were never closer than we were" (p. 279). Chapter 18 (as mentioned) is a loving remembrance of, Lola, his wife of 54 years[28]. Lola was at first a close associate of Deming's and then the

27) However, it must be added that at the time of this video he was 92 years old.

28) Deming's first wife (Agnes), whom he married in 1922, died in 1930. He married Lola in 1932.

mother of Dorothy and their two children: Diana and Linda. Even after she retired from her government job, Lola would help Deming with his work. Perhaps this quote of Deming from Chapter 18 best shows how Lola and Deming felt about each other: "She often remarked during the past few years about the happy life that we had had together — never a word of complaint to one another; no ill feeling against each other; only love and approval, so she thought; so much to be thankful for..." (p. 298). Another quote from Walton (1986) also indicates what kind of family man he was: "He biked with his family well into his seventies. And he was, said his elder daughter, Diana Deming Cahill, an expert kitemaker..." (p. 17).

As a teacher. Deming believed in the Socratic method. Howard S. Gitlow, an acquaintance of Deming for many years, recalls:

> ...calling him in 1981 or 1982 with a question which would clarify six months of personal study. Instead of answering my question, he said, 'You're barking up the wrong tree.' It took me six more months to figure out why I was barking up the wrong tree and which tree I should be barking up. Once I figured it out, I realized that I had learned more by his method than I could have by any other means. (from Voehl, 1995, pp. 80–81)

He also helped many a student even into his last years, for example Lisa McNary with whom he began working (on her dissertation) in 1992 (Voehl, p. 120). And Ernie Kurnow, a long-time colleague at NYU, had this to say about Deming, the teacher: "Somehow, he always found time to consult with students outside of class, no matter how tight his schedule" (from Voehl, p. 65). It is perhaps his famous four-day seminars that best epitomize him as a teacher.

As an academician. Deming had a distinguished career teaching at New York University and Columbia University. He wrote or co-authored more than 170 papers and received many honorary degrees from universities across America. He received many other honors during his life such as being elected the most distin-

guished graduate from the University of Wyoming in 1972, being elected to the National Academy of Engineering in 1983, and receiving the Wilbur Lucius Cross Medal from Yale University (Kilian, 1992). He has also written several books, the two most famous being *Out of the Crisis* (1986) and *The New Economics* (1994).

As a consultant. After working for the Department of Agriculture for 12 years and the Census Bureau for another eight, Deming became a consultant in 1946 and remained such for the rest of his life. Although he was *really* in demand after the "If Japan Can, Why Can't We?" event in June of 1980, it seems he never had trouble finding clients. Of course, after 1980 he was in constant demand. His clients included some of the biggest names among the Fortune 500: Ford Motor Company, General Motors, Dow Chemical Company, and Hughes. He also worked for many smaller companies and travelled internationally, making trips regularly to London, South Africa, and new Zealand to serve clients (Walton, p. 20).

As a consultant he was often too forthright, especially with management which he blamed for so many of the problems companies had. Howard Gitlow tells the story of Deming being at one of America's largest companies where, of all things, a birthday party had been arranged for Deming's eighty-first or eighty-second birthday by the company's top management.

> After cake and coffee, Dr. Deming addressed the top management. His opening lines almost knocked me out of my seat. He said, "Do you know what is wrong with your company?" The room was silent — you could hear a pin drop. Dr. Deming pointed to the president and chief executive officer and said, "Him. He is what's wrong with your company." (from Voehl, 1995, p. 80)

As a friend. Deming had many, many friends. The book by Voehl, *Deming: The Way We Knew Him*, is ample testimony to that. As a friend, Deming would often go out of his way to be of help. There are stories after stories of how he

helped others on the basis of friendship, not for any personal reward (other than the satisfaction that must have given him.). For example, he gave much time and effort helping Mary Walton publish her two books. Others who have written books and were helped by Deming include Andrea Gabor, Rafael Aguayo, and Nancy Mann.

Here's but a sampling of testimonies from Voehl book:

- "To us, Dr. Deming was, most importantly, a *model of a kind and loving friend* [their emphasis]" (Carole and Dave Schwinn, p. 21).
- "We cherish the memory of his friendship and will hold his memory dear" (May Lum and Jay Gould, p. 41).
- "Ed would come through the door and greet me with his beaming smile and a glint in his eyes. I would get his firm handshake and a warm, deep-throated 'Hello, Ernie' and my day was made" (Ernest Kurnow, p. 66).
- "Dr. Deming is friend, colleague, and mentor to me, as he has been to many" (Gerald Glasser, p. 88).
- "In Atlanta, during another dinner with his friends, we sat hidden in a corner, so that he would not be recognized. He wanted to concentrate on his friends" (Hana Tomasek, p.90).

As a person. Deming is often described with the word "curmudgeon" meaning he was, on occasion, quick to anger and rude. Gabor (1990) describes one such instance when Deming began working with the managers at Ford Motor Company: "'Why can't America compete?' Deming would ask, sputtering with rage. 'The aaanswer iiis — MANAGEMENT!'" (p. 127). Despite this sometimes rough exterior, there beat a kind, generous, and loving heart within. I believe Deming's crude outbursts merely reflected a passionate desire to get his message of continuous improvement across. He tended to become more incensed when talking about management because he had seen so many examples of poorly managed organizations and the consequences for the workers and the public at large.

If I were to attempt to characterize Deming I would call him first and foremost a visionary. He was able to see beyond the immediate and realize the value of applying sound statistical techniques to solve many of management's problems. Even beyond statistical techniques, as his system of profound knowledge shows, he was able to conceive of a whole system of management that would seem to take into account everything important: understanding systems and variation, the theory of knowledge, and the application of sound psychology. And, he had a passion for sharing that vision as evidenced by his books and his four-day seminars.

Besides these more serious pursuits, Deming was forever curious. A reading of his booklet describing his November, 1965 trip to Japan (Chapter 15 in Kilian) shows a 65 year old person still fascinated by anything new and different. And he firmly believed in the old saw "All work and no play makes Jack a dull boy." Repeating how Lisa McNary so nicely puts it: "I learned a lot working with Dr. Deming, but I also remember laughing a lot" (from Voehl, p. 124). His love of dining on lobster, corn-on-the-cob, salad, baked potato and ice cream was well known among his close friends (Crawford-Mason, 1992).

Deming was also a "gentleman and scholar" of the old school. He always was dressed well (albeit the suit might have been a bit threadbare) and clean shaven. When dealing with others on an individual basis he always showed the utmost respect. I believe Deming was probably honest to a fault. He was also unpretentious; he never set up an "institute for this or that" as so many other consultants do[29]. He saw no need to expand beyond the two room-office he had in his basement which, apparently, served him quite well.

Deming might also be called a "truth seeker." As one follows his ever-expand-

29) However, he did found the W. Edwards Deming Institute in 1993 (the year of his death) as a nonprofit organization with the aim to foster understanding of The Deming System of Profound Knowledge to advance commerce, prosperity and peace. See http://www.deming.org on the Web.

ing philosophy for quality management over the years we see that this is in itself a model of continuous improvement. Starting with a few basic ideas in the 1950 (which were enough to begin turning Japanese industry around), he finished his life with a fairly well elaborated system of profound knowledge. Had he lived longer, there is no doubt in my mind that he would have continued to refine that system further.

Finally, I believe Deming saw himself as truly a child of God and destine for eternal union with God. Once again as Voehl (1995) states it: "His religion was a very strong part of the fabric of his life. He composed hymns, sang in the choir, said his prayers, and followed the Golden Rule as best a man could" (p. 157). Perhaps it was this underlying belief and faith in God that accounts for all the other remarkable traits of this man: his honesty[30], respect for others, readiness to help others, love of family, and desire to change the world for the better. Deming lifetime goal was nothing less than the transformation of Western management. And, as Gabor (1990) expresses it, he held the belief "that business has a social responsibility to survive, to grow, and to 'provide jobs and more job.'" (p. 68). Oh, what a nobel goal and how much it is still needed throughout the world. Deming has done much to make this a better world and, God willing, his legacy will continue to do so.

11. Conclusion

The purpose of this paper has been to provide a brief biography of Dr. W. Edwards Deming. In doing so it has traced his activities through seven stages of his long and prodigious productive life, briefly reviewed his main teachings, and attempted to describe his personality by considering the roles he played as a student, teacher/academician, consultant, friend, and person. What more can I add

30) Some might accuse him of being *too honest* with some of his remarks about things like American management.

at this point? Only that I have had an interest in Deming since I was first introduced to his Fourteen Points when I was given the Scholtes book (1988) to read in 1989. The occasion was my first day on the job as a "procedures analyst" at Douglas Aircraft Company[31] in Long Beach, California. As I have continued to study Deming and his ideas I become ever more convinced he was "on to something." Although sometimes the explanations of his ideas are not all that clear, a continual revisiting of them always sheds new insights into what he was trying to say. And, most of what he says *is* clear and immediately applicable to the workplace (and, even, one's personal life). The many companies and people who have benefitted from Deming are a testimony to the efficacy of what he taught. I look forward to continuing to learn more about this truly remarkable man and his philosophy! Truly, I feel I have only touched the tip of his iceberg of knowledge. As a friend of mine said recently, "There will never be another Ed Deming."

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31) Douglas Aircraft Company was part of McDonnell Douglas Corporation which has now merged into the Boeing Company.

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DEMING'S FOURTEEN POINTS

(Deming, 1986, pp. 23–24)

Point 1: *Create constancy of purpose towards improvement of product and service, with the aim to become competitive and to stay in business, and to provide jobs*. Here Deming is stressing the need for management to make a real commitment to quality so that everyone else in the company has confidence *that there will be a future*. Specifically, management must innovate, put resources into research and education, and "constantly improve the design of product and service." Management must be concerned with business far beyond the next quarter's dividends!

Point 2: *Adopt the new philosophy. We are in a new economic age. Western management must awaken to the challenge, must learn their responsibilities, and take on leadership for change*. According to Deming, for the transformation (of Western management) to occur: "We can no longer tolerate commonly accepted levels of mistakes, defects, material not suited for the job, people on the job that do not know what the job is and are afraid to ask..." (p. 26). Citing the precision with which the Japanese train system operates — as opposed to what we often find in America, for example — Deming relates this set of instructions for getting to a company in Japan: "0903 h Board the train. Pay no attention to trains at 0858, 0901. 0957 h Off."

Point 3: *Cease reliance on mass inspection to achieve quality. Eliminate the need for inspection on a mass basis by building quality into the product in the first place*. The main idea here is that it is better to randomly sample the process's output for purposes of maintaining statistical quality control rather than having 100% inspection. Deming mentions a printing company that had prided itself on proofreading everything eleven times yet still needed help due to constant customer complaints. The problem: each of the eleven inspectors relied on

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the other ten! In other words: you can't inspect quality into a product or service. Instead, you should work to constantly improve the process — improved quality will automatically result.

Point 4: *End the practice of awarding business on the basis of price tag. Instead, minimize total cost. Move toward a single supplier for any one item, on a long-term relationship of loyalty and trust.*[32] Deming quotes from an actual government advertisement for professional help: "For delivery and evaluation of a course on management for quality control for supervisors.... An order will be issued *on the basis of price*." Worse yet, such a practice will drive those who would have delivered good products and services out of business. Common sense tells us that you can't make quality products out of poor quality material. The other idea contained in this point is that it is a good idea to establish long-term relationships with your suppliers. This way you can work together to improve the quality of the supplies and, accordingly, that of the product in which they are used. As the product's quality improves and it becomes more successful, the additional profit can be shared with the supplier thus encouraging further improvements!

Point 5: *Improve constantly and forever the system of production and service, to improve quality and productivity, and thus constantly decrease costs*. Some of the things Deming mentions here are continual improvement through a better understand customer requirements, development of better relationships with suppliers, doing a better job of hiring, training, and supporting workers, and considering/experimenting with all ways that a process might be made better (maybe just by changing the temperature or humidity). Toyota takes this point seriously; for example, in 1995 Toyota Motors received 764,402 suggestions and *99% were adopted* (Toyota Motor Corporation, 1997).

32) Deming discusses this point extensively in *Out of the Crisis* (17 pages).

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Point 6: *Institute training on the job*. Deming cites an example, perhaps all too common, of a worker simply being told to "go to work" without having the job explained to him and, to make matters worse, a foreman who "knows nothing." Managers need to be trained in all aspects of the company operation and given an appreciation of variation. Unfortunately, most American managers have not had experience at the "factory floor" level. Deming also brings up the importance of recognizing that people learn in different ways.

Point 7: *Institute leadership. The aim of supervision should be to help people and machines and gadgets to do a better job. Supervision of management is in need of overhaul, as well as supervision of production workers*. Deming here is saying the job of management is not "supervision" but "leadership." This means knowing enough about the worker's job to be able to give him or her the help needed. It also means not managing by the numbers as in "zero defects" or just meeting or not meeting some specification. The goal of leadership should be to empower (with the training and equipment needed) and encourage the worker to continually improve the process, not meet some relatively arbitrary specification or make some quota number.

Point 8: *Drive out fear, so that everyone may work effectively for the company*. Workers and supervisors will often do what management wants out of fear, even if it has long-term adverse consequences. One example Deming cites is a foreman who knew the production line needed to be shut down for repairs but took a chance in an attempt to meet management's quota for castings. When his worst fears were realized, not only wasn't the quota met, but the line was down for four days for repairs! Fear will lead to such things as an inspector passing poor quality products and fudging figures. A secure environment must be created where the worker knows it is OK to report a problem and a spirit of working together

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to solve problems prevails over blaming.

Point 9: *Break down barriers between departments. People in research, design, sales, and production must work as a team, to foresee problems of production and in use that may be encountered with the product or service*. Another common problem in companies is the left hand not knowing what the right hand is doing. Deming gives the example of a perennial design problem that the servicemen continued to correct because there was no system for feedback to manufacturing to eliminate the problem in the first place! Departments need to think in terms of who their *internal* customers are and develop a good working relationship with them.

Point 10: *Eliminate slogans, exhortations, and targets for the work force asking for zero defects and new levels of productivity. Such exhortations only create adversarial relationships, since the bulk of the causes of low quality and low productivity belong to the system and thus lie beyond the power of the work force.* What good are slogans when nothing is changed to help the worker do a better job. Deming's famous Red Bead experiment dramatically demonstrates the futility of exhorting workers to do better when the system remains the same. As the experiment shows, the (stable) system will never allow the workers to do better until management changes it.

Point 11a: *Eliminate work standards (quotas) on the factory floor. Substitute leadership.* Point 11b: *Eliminate management by objectives. Eliminate management by the numbers, numerical goals. Substitute leadership.* As Deming so eloquently points out, work standards (quotas) are great demoralizers. Take the case of the woman required to handle 25 reservation/information calls an hour for some airline. Due to circumstances beyond her control, calls often took longer than the average of 1/25 of an hour (2.4 minutes) the standard called for. The

results was a dilemma: either give courtesy and helpful service or rush the call often angering the customer. Instead, as already mentioned, the process must be studied and and systematically improved.

As for management by the numbers, the main problem is saying "we will increase productive (or anything) by, say, 10% next year" *without a plan or method for doing so*. It's as if somehow that increase will occur without any change in the way the company has been doing business — impossible, with a lot of frustration being the only result.

Point 12a: *Remove barriers that rob the hourly workers of their right to pride of workmanship. The responsibility of supervisors must be changed from mere numbers to quality*. Point 12b: *Remove barriers that rob people in management and in engineering of their right to pride of workmanship. This means,* inter alia*, abolishment of the annual review or merit rating and of management by objectives.* Some of the barriers to pride of workmanship cited by Deming in *Out of the Crisis* are: foremen who are afraid to make decisions or don't know their job well enough to give leadership, equipment not working right, inadequate training, and being required to use poor quality materials. Deming cites many real life examples.

Point 12b, about eliminating the annual review or merit rating, is perhaps the only point that is controversial. However, Deming's basis for this point is similar to that for Point 3, Cease reliance on mass inspection. As Deming puts it:

> Basically what is wrong is that the performance appraisal or merit rating focuses on the end product, at the end of the stream, not on leadership to help people. *This is the way to avoid the problem of people.*[33] A manager

33) Probably most of us know from our experience in the workplace or even at home how difficult it is for us to deal directly with people, especially about what might be perceived as a deficiency on the part of someone. Simply put, we fear confrontation.

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becomes, in effect, manager of defects [emphasis added]. (p. 102)

Besides this, such rating systems tend to foster competition among workers rather than teamwork. They also tend to foster an attitude of "not rocking the boat" and focusing more on how to get a good rating (e.g., tell the boss what he/she wants to hear) rather than using the knowledge possessed to help the company.

Instead, Deming says the performance of all workers doing a similar job should be tracked and plotted on a control chart. Should anyone's performance fall outside reasonable limits, an investigation should be conducted to determine the cause (inadequate training, bad equipment, etc.). It is usually the system, not the individual worker, that is at fault when something goes wrong or there is poor performance. In fact, according to Scholtes (1988), about 85% of the problems an organization encounters is due to the system. Given that you have been careful to select good people, given them appropriate training and the chance to gain experience, and provided motivation, they will almost invariable do a good job *if the system lets them*.[34)]

Point 13: *Institute a vigorous program of education and self-improvement.* As opposed to Point 6, *Institute training on the job*, this one is talking about just making your people better through education and other means such as giving them additional responsibilities. To quote Deming from *Out of the Crisis*: "People require in their careers, more than money, ever-broadening opportunities to add something to society, materially and otherwise" (p. 86).

Point 14: *Put everybody in the company to work to accomplish the transformation. The transformation is everybody's job.* This simply means moving beyond words to action. Management must study, understand, and agree on what

34) That the rating system is "alive and well" is testified to by a recent New York Times article (Companies Turn to, 2001)

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the other 13 points mean and then disseminate this information to all the others in the company and develop concrete plans for accomplishing the points.

APPENDIX B

DEMING'S SEVEN DEADLY DISEASES[35)]

(Walton, 1990, p. 1986)

1. *Lack of constancy of purpose*. A company that is without constancy of purpose has no long-range plans for staying in business. Management is insecure, and so are employees.
2. *Emphasis on short-term profits*. Looking to increase the quarterly dividend undermines quality and productivity.
3. *Evaluation by performance, merit rating, or annual review of performance*. The effects of these are devastating — teamwork is destroyed, rivalry is nurtured. Performance ratings build fear, and leave people bitter, despondent, and beaten. They also encourage defection in the ranks of management.
4. *Mobility of management*. Job-hopping managers never understand the companies that they work for and are never there long enough to follow through on long-term changes that are necessary for quality and productivity.
5. *Running a company on visible figures alone*. The most important figures are unknown and unknowable — the "multiplier" effect of a happy customer, for example.
6. *Excessive medical costs* for employee health care, which increase the final costs of goods and services[36)]
7. *Excessive costs of warranty, fueled by lawyers that work on the basis of contingency fee*s.

35) For a fuller discussion of these "diseases" see Chapter 3 of Deming (1986) and the epilogue of Vohel (1995).

36) It is interesting that despite Deming's concern for the worker, he still believed common sense had to prevail when it came to benefits.

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MANAGING BY OBJECTIVES/MANAGING BY RESULTS (MBO/MBR): ONE STORY

(Castellano & Roehm, 2001, p. 42)

The following is the story of a student (we'll call "Caroline") who was in one of the authors' master's degree level Strategic Cost Management classes (University of Dayton in Ohio):

After I got my degree in accounting, I took a job at a Fortune 500 company. I was a financial analyst assigned to the collection of accounts receivable. About 35 of us in the department were divided into groups of five, each group with a manager. Each group was responsible for a different geographic area, and each group member was responsible for a portion of that area.

We were to call customers whose accounts receivable balances were past 30 days outstanding, find out why and then facilitate prompt payment. In most cases there was a problem with the installation of the equipment they had purchased. If this was the case, we had to call the field office that was responsible for the sale.

I had no control over when the customers decided to pay their bills. I could not fly out and install the system correctly. I could not fix problems they might be having with the system or our sales representatives.

Out sales representatives were on the bonus plan which gave them an annual trip if their sales were at an arbitrarily chosen target level. Sales reps in my area would book a sale and invoice customers for unordered products just so they could qualify for their trips. Meanwhile, that invoice would be again on my receivable report, and my manager would blame me for not collecting it.

We were evaluated on a monthly basis on the dollar amount of aged receivables we collected. Our target amount was based upon past performance. There were monthly meeting at which an outstanding group was named and a "collector of the month" plaque was given. One month I managed to collect more than

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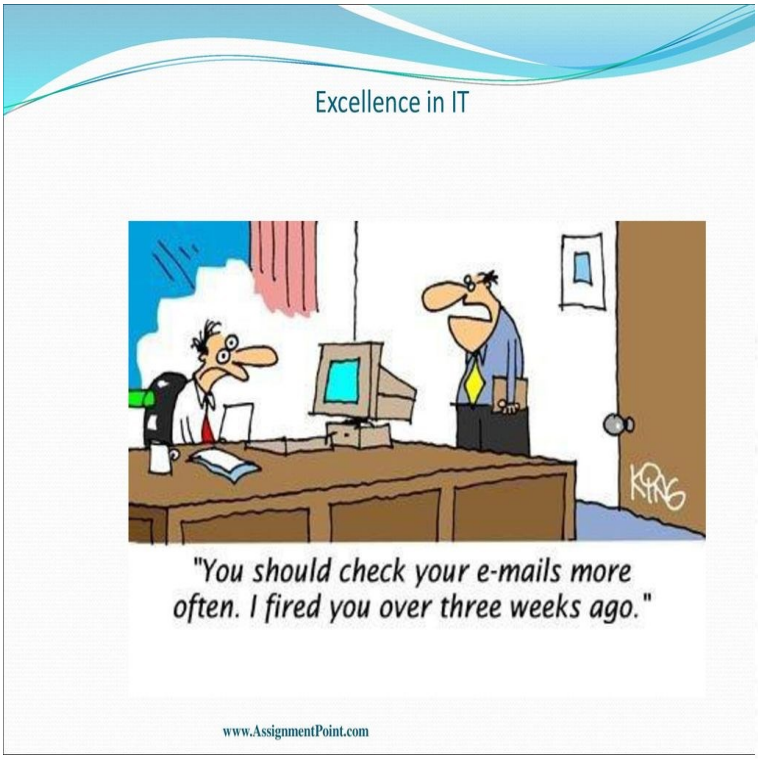
200% of my targeted amount. I was praised by my manager and told that no collection agent had ever collected that much over his or her target. Everyone in the department was envious — asking me how I managed to do it.

The whole process miffed me because I was starting to realize I had almost no control over when customers decide to pay their bills, and yet I was being rewarded for a chance occurrence. I did win the coveted "collector of the month" plaque that month and received a bonus of $250 accompanied by a letter from some manager three tiers up the ladder (whom I'd never seen) for doing so well.

As might be expected, my next month's performance was far less than 200% — more like 87%. I was called into my manager's office and reprimanded for poor performance. I was told I could do better and that I was obviously not trying hard enough.

I was so frustrated and anxious about my performance that I became sick. I was diagnosed two months later with a bleeding ulcer. I had to miss work to have the diagnostic work and endoscopic surgeries. I managed to rack up over $5,000 in medical bills that were paid by my employer.

Missing so much work only hurt my monthly performance. It became a vicious cycle. The poor performance during this period was once again noted on my performance appraisal, and I was once again reprimanded for not trying hard enough. When a downsizing occurred, my company let 10 of the department's worst performers go in the first round of layoffs and firings. I was one of them.



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